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SHIPBUILDING AND SHIPPING RECORD

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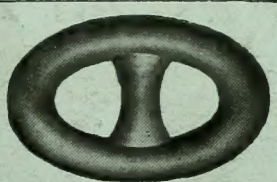

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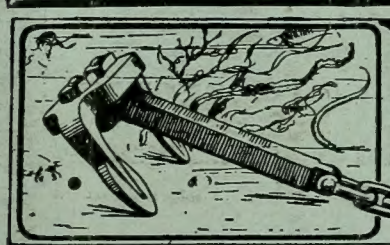

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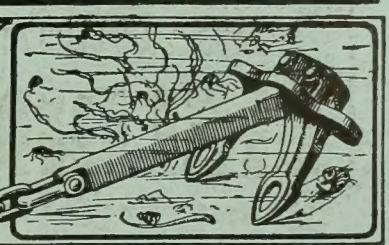

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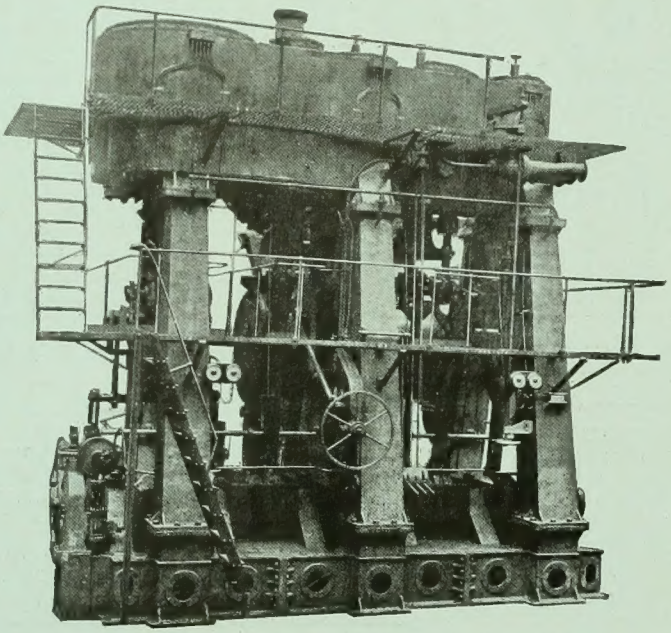

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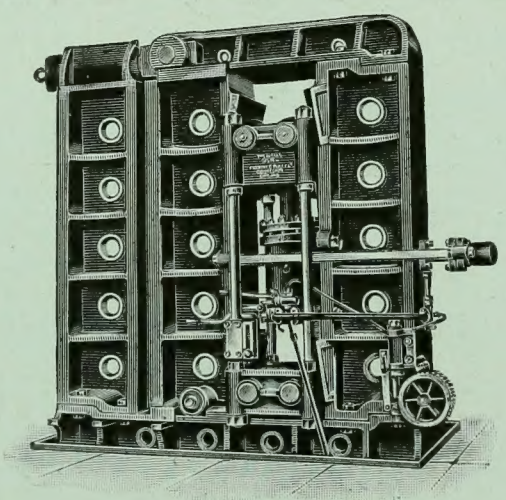

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SOME matters bearing on merchant shipping are to be brought before the House of Commons in the immediate future. It is understood that in the resolution of thanks to the fighting forces which will be submitted to Parliament, special mention will be made of the great national services rendered by the mercantile marine. Members of the merchant service have been running war risks of so grave and continuing danger that it will be only just to class them in a resolution of this kind along with the combatant forces of the nation. A definite indication has now been given that a general statement will be made in the House of Commons on the progress of the shipbuilding programme in which the standard ships figure. Three of these vessels were actually completed on September 30, but, as the Ministry of Shipping properly claims, this figure bears no relation to the activity of the shipyards engaged on this class of ships. A statement on Admiralty organisation has been promised from Sir Eric Geddes. There is a talk also that a Bill will be required in connection with the requisitioning of ships. In the House of Commons, proposals dealing with the votes of officers and men in the merchant service in connection with the Reform Bill are being considered. They would have to be dealt with under the category of absent voters. A variety of topics concerning various aspects of the mercantile marine may thus be expected to come under the attention of Parliament.

Parliament and the Merchant Service.

The Austrian Government, says *Hamburger Nachrichten*, has given a long-wished-for sign of activity concerning provision for the future of Austrian shipping by publishing the draft of the new Marine Support Bill. This measure gives increased incentive to shipbuilding, and gives owners much-needed support in connection with after-the-war problems. An important alteration compared with the law which expired at the end of last year (after 10 years' operation) is the increased allocation for building subsidies. The old law limited the construction bonus to 25,000 tons per annum, which figure is raised to 60,000 tons by the new law. Since unclaimed balances cannot be carried beyond 1921, it will be in the interests of owners to take full advantage of subsidies prior to that date. The expiry of the agreement with the Oesterreichischer Lloyd will leave the Government a free hand in matters of shipping policy in 1921. The State undertakes additional liability of about £93,000 per annum by the increased subsidies. In order to permit of speedier action during the transition period after the war, the notice to be given by the Government before reducing or suspending the voyage subsidy to any line is reduced from six to three months. The Government is empowered by the new measure to make advances needed by shipowners to cover working expenses and supply necessary equipment.

Austrian Shipping Policy.

At the annual meeting on Friday of the Federation of British Industries, Mr. F. Dudley Docker, C.B., the retiring president, was able to report a most successful first year. The foundations of the Federation have been solidly laid by means of much quiet useful spade work, and it has gradually won for itself the position of being the representative organisation of British manufacturers. Recognition has been obtained from the Government, the Prime Minister having authorised the statement that he would welcome any federation of industry, and that in his opinion such an association would be of assistance to any Government. Whilst taking every precaution against going ahead too fast, the Federation is at the same time fully aware of the danger of stagnation which faces all associations. Amongst the important questions of pressing concern with which Mr. Docker dealt in his address was the relation which education must bear in industry. This question of education lies at the root of a great many of our industrial difficulties. If we are to be successful in competition, we must provide for the better education of ourselves and of our workpeople. One of the causes, in Mr. Docker's opinion, of industrial unrest is the lack of knowledge; it is a fruitful agent for the generation of suspicion, and he urges therefore that the Federation should concern itself particularly in fostering, in no niggardly spirit, the spread of education.

Federation of British Industries.

Much of the business of underwriting of to-day is controlled by agreements—rates are raised so much per cent. by a movement to which the whole market subscribes; disbursements prove a means of keeping values down so that the market binds itself to insist on a clause limiting the amount placed thereon; in fact, a sheaf of agreements at present exist in the underwriting world which, though beneficial to the business in the main, are at times prejudicial in their hide-bound immutability. Perhaps the most necessary agreement of all is that concerning rates. Twice within recent memory, marine-risk rates on hulls have been put up by agreement, and to those conversant with the figures of underwriting accounts the necessity for the rise was obvious. With this we have no quarrel at the present time; but, looking to the future, we would enter a plea for some measure of justice in the assessment of hull risks when navigation is once more normal, and exceptional hazards are reduced to known quantities. The old-time underwriter, who wrote or declined each risk shown him,

Underwriting Agreements.

on its merits, was bound by no agreement, his judgment alone was the deciding factor on which a risk was accepted, and yet he did tolerably well. Moreover, personality in those days carried a weight which in these days is more or less counterbalanced by the restrictions concerning which we write. Let us hope that after the war more consideration will be shown to the fleet that has gone clear of accident, and that the owner with a good record will reap the benefit of his careful management.

Delayed Marine Insurance Claims.

We have heard something recently of the delay which owners are experiencing in obtaining settlements of claims by the Government War Risk Insurance Office. Their complaints are, without doubt, justified, though we understand that considerable progress has been made with the speeding up of this Department, at which we hinted some weeks ago. There is another point in connection with delay in the matter of claims, which owners, in view of their experience in the above matter, might take to heart, for in this case they are the offending parties. We refer to the presentation of long outstanding claims for settlement by underwriters on the marine policies. This is no part of the question of deferred repairs, and has to do solely with claims for repairs which have been completed and for which the accounts are immediately available. In some cases, for no apparent reason, these claims are not presented for collection until some considerable time after the vessel has sailed. For instance, underwriters are now seeing, for the first time, a claim, the final accounts for which were passed by the Surveyor in January, 1914. As far as we are aware there has been no dispute in the matter, and the sole reason for the delay seems to be that the documents have been shelved in the owner's office until recently. Needless to say the amount payable by underwriters is not a large one, but it is none the less annoying to them to have to make a settlement on the account for a year which they regarded as virtually closed.

American Coastal Trade.

The war is certainly responsible for many developments that would not even have been considered a few years ago. Last month the United States and Canada reciprocally withdrew their Navigation Laws, thus throwing the American coasting trade open to Dominion ships, a decision which has now been followed by Washington's adoption of a measure that will enable all foreign vessels also to participate in it during the war and for 120 days thereafter. It is true that a permit is required which shall be limited to a specific voyage, but no difficulty whatever is anticipated in this respect. The intention, we believe, is to withdraw for overseas service suitable American ships from coastwise business, and they will doubtless be largely replaced by neutral tonnage. For instance, a vessel sailing from Chile with nitrate to Charleston or Savannah might easily have available space to take cargo for some other American port further north, but unless the law in question had been passed, all this space would have been wasted, so far as American waters are concerned. It is simply an emergency measure to meet tonnage requirements, and so relieve transport congestion. The United States coasting trade extends from the Atlantic to the Pacific, and to the recently acquired West Indian Islands, and in the case of Russia, between Europe and her Far Eastern possessions. In fact, the problem in its relation to British shipping is one that should be dealt with when conditions are again normal by way of a reciprocal arrangement. Unless, indeed, action is taken in the matter, the time is approaching when our flag will be debarred from half the trade of the world, although vessels of every nationality can carry cargo between the United Kingdom and our colonies. This is manifestly unfair, so much so, indeed, that it would be difficult to think of any of the countries which practise reservation protesting against any effort made by us to protect our own interests.

Neutrals and the Blockade.

Perhaps the annals of the Prize Court supply evidence as eloquent as any, of the means by which enemy agents have utilised neutral shipping to the Scandinavian countries and to Holland as a channel through which to draw supplies from the outside world to Germany. Sir Samuel Evans has just condemned a large quantity of wool intercepted on two Swedish steamers under rather noteworthy circumstances. It was stated on behalf of the Crown that the wool was shipped from Buenos Ayres and consigned to the Swedish Army Administration at Gothenburg, but no claim to it had been filed by that administration. Sir Samuel Evans found that the real destination of the goods was Leipzig, but he expressed himself as unable to know how the name of a neutral Government department came to be used by the real consignees in Germany. The incident, indeed, excites curiosity in regard to the details which were not revealed to the Prize Court. For a long period of the war, for reasons which are better known to the Foreign Office than to the Navy, we were unable to grapple thoroughly with the question of exports from adjacent neutral countries to Germany. Happily the intervention of America brings powerful assistance to our blockade policy, and President Wilson's intimation that essential supplies are to be cut off at American ports if they are directly or indirectly to make possible any neutral replenishment of enemy needs, will, we hope, effectively secure the complete commercial isolation of Germany.

About Shipping Rings.

Following upon the rejoinder of the Associated Chambers of Commerce to the report of the Chamber of Shipping and the Liverpool Steamship Owners' Association, there has been, as was to be expected, a recurrence of the condemnations of "Shipping Rings or Conferences." We have no greater liking for pools of the kind than the average man of business has, and we have never heard any member of one say that he preferred the arrangements to any other. We demur, however, to the view that there was nothing at all to be said for them in the circumstances which prevailed in pre-war days. We are thinking, of course, only of pools between British and foreign lines; "rings" of owners flying the same flag are in a different category—a category, moreover, for which there is less to be said. The point to be remembered is that the prime duty of every business man is to take care that his invested capital is employed profitably. British shipowners who went into conferences with German shipowners did so because, of two evils facing them, it was the lesser. It was better to compromise than to fight. The view of the British shipper who condemns pools is that by maintaining their freights at a higher level than the corresponding freights charged by German ships, British shipowners handicapped British industry. The root of the matter is, however, which of the two rates was the economically natural one? It will be found that the British rate was due to State aid given directly or indirectly to German shpis. It is, therefore, the British manufacturer who handicaps himself by neglecting to press the point that the artificially created economic advantages of the British shipowner's rivals should be neutralised.

Government and Labour.

Usually when a difference develops between Capital and Labour, a considerable number of people assume that the employers are the aggressors. That cannot, however, be said to be true of any of the war-period's troubles, because, as we have more than once pointed out, controlled firms are as much the servants of the State as the least important workers in their establishments. The power to make or to break bargains with the Trade Unions, fix rates of wages, and to ordain the hours which shall be worked—or rather which ought to be worked—is vested in the Ministry of Munitions or the Admiralty, and employers resist it at their peril, just as workers do the provisions of the emergency legislation which

relate to them. So that if the men are not blameworthy for any of the current troubles, the Ministry of Munitions and the Admiralty must be. Employers have, too, like the men, grievances against the Departments named—and one or two others besides—although they do not make the song about them that Trade Unionists habitually do about theirs. The ground of one of their complaints is, for instance, that in their dealings with Labour, Government officials show a disposition to promise the moon and other impossible things in return for some concession of immediate importance to them. The official view is that these arrangements are only for the duration of the war, but it certainly is not the Trade Union view. Any worker will tell you, if you ask him, that anything he has gained during the war is to be carried over into the post-war period, including the current weekly rates of wages. In addition, he is to have all his pre-war "rights" restored, including the rights to restrict output. For employers the outlook is becoming serious. Before it becomes still more serious, the Government might carefully consider whether the time has not arrived for giving employers, at any rate, some say in the fixing of wages and the framing of conditions.

Builders and Neutral Orders.

The news that North-East Coast shipbuilding firms have heavily booked Norwegian orders for post-war delivery serves to emphasize the point which we made a week ago about the danger of the obscurity of the Government's intentions with regard to shipbuilding and shipping. It is tolerably clear, of course, that no British-owned or British-built new vessel will be allowed to go even to a neutral owner for some years after the end of the war. The vessels which are said to have been ordered are, as a matter of fact, only to be delivered if and when the British Government is agreeable that they should be. But the whole business graphically illustrates the chaotic state into which the shipbuilding and shipping industries are being allowed to lapse for want of a clear and definite statement as to the Government's policy. Nobody knows what is in the Government's mind with regard to shipping, although plenty of people are confidently looking for nationalisation in some form or other. Beyond the announcement that a national yard or two is to be established, nothing has been said about State ownership of the shipbuilding industry. Various stories are, however, current to the effect that the control of shipbuilding is to be continued for a considerable time after the war. The position is—and its danger is obvious—that nobody knows where he stands, or rather where he will stand, when the State control is removed. It is time an authoritative statement was made. Meanwhile, we do not blame shipbuilders who are booking neutral orders for, at any rate, making a bid to look after themselves.

Breadth and Resistance.

For long it was held that in order to ensure high speed it was necessary to have small beam. This is so in only two types of seagoing ships, viz., scout cruisers and destroyers. In merchant ships it has repeatedly been found that by increasing the beam and decreasing the block higher speeds were attainable than with narrower and fuller forms. Sir Archibald Denny has instanced the case of a vessel which his firm built. In their model experiments they started with the dimensions suggested by the owner, but they found that by adding 3 ft. to the beam and fineing the block coefficient, practically two knots could be gained. This example is not an exception. In a case which came under our notice the other day, it was found that, in the case of two vessels, each 400 ft. in length and of the same actual displacement, but differing in beam and fullness, the narrower and fuller ship required *twice* the power of the wider and finer vessel at a speed of 15 knots. It must be admitted that the fuller vessel was too full for that particular speed, but the importance of adopting the best beam and block for desired speeds is forcibly illustrated in that example. In the design of the cross-channel steamers *Normania* and *Hantonia* Sir John Biles was enabled by a reduction in beam, as compared with the preceding ships on the same service, to effect economy in weight and power. In this case, however, such reduction did not involve any material increase in the coefficient of fineness, nor introduce any detrimental resistance effect. The question of beam must, however, be considered from the standpoints of stability and weight, as well as that of resistance.

Solving the Tonnage Problem.

The great demand for new tonnage, which has arisen as a result of the war can be met in two ways; first, by increasing the number of shipyards or extending the existing yards, which involves the laying down of new and costly plant; and second, by increasing the capacity of existing yards by the introduction of quicker and better methods of production. The first of these methods is being adopted to a very large extent, and with good results for the immediate end in view, but what the effect will be in the long run, after the war is over and the demand for tonnage is satisfied, is a matter which is worthy of being kept in view. The second method is also being adopted to a certain extent, as witness the adoption of the principle of standardisation, but standardisation is based on the assumption that methods existing at the moment are the best possible, and proceeds to work at the highest rate possible with existing methods. It is one of the great faults of standardised production, that it of necessity closes the door to the introduction of new methods. In the case of the Government standard ships, these are being turned out in exactly the same way—albeit, at a quicker rate—as it has been customary to adopt in the building of cargo vessels for the last 50 years, and he would be a bold man who would say that a totally different and a quicker way of building ships could not be devised.

Boiler Efficiency.

In making comparisons of the fuel consumption and general efficiency of the machinery of a vessel under trial conditions with that obtaining on service, it is invariably found that the performance under the latter conditions is somewhat poorer, owing to circumstances which do not obtain under test. On trial every care and attention is given in the operation of the machinery to obtain the best results, and with clean boilers and skilled stoking a fairly high evaporative efficiency can generally be obtained. On actual service, however, it is impossible with the limited staff to give the same attention to detail, especially in those cases in which the exigencies of the service demand long periods of continuous steaming, with the result that the performances are disappointing to the designer. As the greatest falling off in efficiency takes place in the boiler room, it is necessary for the engineer-in-charge to carefully supervise the firemen in their work. The general tendency with firemen is to throw too much coal on the grate at one time, thus liberating an enormous amount of volatile matter which cannot be ignited. To obtain complete combustion and elimination of smoke, each furnace should be fired lightly and more frequently. The necessity for using only pure water for the boilers to prevent scale being formed on the heating surfaces is apparent, as the evaporative capacity falls off rapidly with scale formation. The deposition of soot is another source of loss in efficiency, and every precaution should be taken to keep the boilers in a clean condition.

Oil Fuel Supplies.

There are two uses to which oil fuel can be put in the service of the marine engineer; it can be used as the motive power for marine Diesel engines, and it can also be burned in the furnaces of marine boilers, and thus utilised to produce steam. In each of these two fields the success which has attended the use of oil fuel has been undoubted, and a further rapid development has only been prevented by the inadequacy and uncertainty of supplies.

If, however, a cheap and continuous supply of oil fuel were assured, it is certain that its use would be greatly extended. Supplies from oil wells and gushers are always uncertain, and, moreover, they suffer from the disadvantage of having to be brought from abroad, which necessarily adds to the cost, hence the advantages of a home supply are obvious. We have already drawn attention to the steps which are being taken by Parliament to develop the production of oil which is known to exist beneath the soil in certain parts of these islands, and now there comes the announcement that the Fuel Research Board are experimenting in the direction of the economical production of fuel oil by the carbonisation of coal. It is well known that fuel oil can be thus produced, but it remains to be seen whether the process can be worked on a commercial basis. This will demand a successful method of distillation accompanied by the production of by-products, such as coke, ammonia, &c., which can be utilised commercially. Hence the experiments of the Fuel Research Board. Marine engineers are keenly interested in this subject and will eagerly await developments.

THE FUTURE OF THE MOTOR-SHIP.

THE voluntary liquidation of the "Flower" Motor-ship Company has drawn attention to the question of the successful running on commercial lines of ships driven by internal-combustion engines, and it would appear at first sight that the failure of the company was indicative of the fact that up to the present time at least, the commercial success of the marine Diesel engine was not proven. Such a conclusion cannot, however, be drawn when the statements made at the extraordinary general meeting, held on Thursday last, under the presidency of Sir Marcus Samuel, are considered.

The meeting was called to pass the resolution "that the company be wound up voluntarily," and it was made clear that the circumstances which led to this course being adopted had nothing whatever to do with the merits of the business itself, but were matters "purely of personality." The chairman stated that the directors could not conscientiously advise the continuation of the company because of the large liability on the shares. These were only 3s. 6d. paid up, and many of the shareholders did not like the prospect of a liability of 16s. 6d. per share which might be called up. Another reason against the continuation of the business was that the shareholders would have to take the entire risks of the construction of new tonnage at very high rates, whilst they could only retain 20 per cent. of any excess profits. "That," said Sir Marcus, "is such an unbusinesslike proposition that the directors do not feel justified in asking the shareholders to take it." Continuing, he expressed the hope that some change might be made in the excess-profits duty, because it was felt to be a bar to enterprise. No sane business man will take the extraordinary risks which attach more or less to all businesses—but especially to the shipping business—knowing that profits are strictly limited whilst losses are unlimited.

Turning now to the results achieved and the experience gained by the use of internal-combustion engines in sea-going vessels, there can be no doubt as to the success attained by the company in proving that this method of propulsion of ships is one which will be adopted more and more in the future. In fact, more than one speaker voiced the opinion that the use of the Diesel engine will lead very largely to the exclusion of other more old-fashioned methods of propulsion, and that the work of the company had proved this great fact, which would be useful hereafter to the nation and to the world at large. Naturally, the development of the use of a new power is one of gradual progress, but the progress which has been made during the last four or five years has been immeasurably greater than any development which took place at the installation of steam power for similar purposes. And in the words of Mr. Frederick Lane, who seconded the resolution, those who are waiting for the termination of the war to renew their efforts in the development of the use of this power on sea-going vessels will see progress go by leaps and bounds, and the results achieved will astonish all those who are interested in the question of reducing the cost of transport by sea.

Sir Marcus Samuel, by a reference to what had actually been done by the company's ships, was also able to speak very hopefully of the future of the motor-ship. Although the company was being wound up, the good work that it inaugurated, he said, was destined to have a most important influence on the future of shipping throughout the world, because it is now established beyond any doubt that the oil engine, the internal-combustion engine, has advantages of the most material kind over the steam engine. As an instance of that, Sir Marcus informed the shareholders that the owners of these ships requisitioned by the Government appealed that a different rate should be paid for them, compared with the rate that was paid for identical ships as steamers. In the result, the arbitrators—being men against whom it would have been impossible to take the slightest exception, because they had a perfect knowledge of the question—gave an award that, as compared with 11s. per gross registered ton for steamships, these vessels were to be remunerated at the rate of 12s. 6d. per ton, thus proving that, size for size, the internal-combustion engine-driven ship has established a superiority in earning power of no less than 15 per cent. over the steamship. This, of course, is not the full measure of the advantages gained. In the opinion of Sir Marcus Samuel, if these vessels had been burning oil under their furnaces they would have consumed at least four times the quantity used in the internal-combustion engines.

Thus, although this British motor-ship company ceases to exist, it has given an example as to the use of the internal-combustion oil engine which must become accentuated after the war, because the supplies of oil throughout the world are turning out to be much beyond the hopes or expectations of any living being. New sources have been discovered, widespread installations are being put up, and the advantages of liquid fuel have been so completely established that it is impossible to think of reverting to coal as the main source of motive power for the propulsion of ships.

FERRO-CONCRETE FOR SHIP CONSTRUCTION.

THE problem of providing enough ships to meet our needs at the present moment, in addition to the difficulty of obtaining steel for the building of the same, has caused attention to be drawn to the possibilities of using ferro-concrete as a material for their construction. Owing to reinforced-concrete structures not having been developed in the past so much in this country as in other countries, there has not been much consideration given to its possibilities in regard to ship construction hitherto. There have been, however, barges, lighters, &c., for use in inland waters built abroad during the past few years, but very little experience has been obtained as to the manner in which vessels of this material will stand under the strains which would be experienced under conditions at sea. The experience so far gained with lighters, &c., is such that in those countries where steel is not produced or only produced in such small quantities that practically none is available for steel shipbuilding, the opinion is firmly held that ferro-concrete will be largely used in shipbuilding in the future, especially in vessels intended for coasting trades or for service in inland waters.

Naval architecture is, however, not a finite science, and, in regard to the strength of vessels, the best results have been obtained by combining the application of scientific laws with experience obtained from ships that have proved to be efficient. In the application of ferro-concrete to ships, the only method by which results will be obtained which are likely to be satisfactory is to combine the experience obtained from steel vessels with that obtained from land structures of ferro-concrete coupled with the

experience obtained from lighters, barges, &c., where they have been in use for some time.

Ferro-concrete in its application to land buildings is governed by what are fairly well-recognised rules, the concrete being considered capable of withstanding compressive stresses only, but incapable of withstanding any tension. In a vessel built of this material, the tensional stresses produced in the structure due to strains from longitudinal bending are therefore assumed to be taken up entirely by the reinforcements embedded in the concrete for this purpose, and which in the upper works of the ship are placed in the hatchway coamings (where the same are continuous) and gunwale, while those in the bottom of the vessel are provided for by the reinforcing rods placed in the bilge, keelsons and at the keel. The other stresses are borne partly by the reinforcements and partly by the concrete, while in the framing, floors and beams the local shearing stresses are taken up by stirrups and hoops, the spacing of which is determined by the amount of the stresses.

The composition of the concrete and the method of applying it is probably the factor which will cause a large variation in the actual construction, it being obvious that what is desired is to obtain a monolithic structure. Many questions are involved in this, such as consistency of the mixture so as to obtain the best results in regard to imperviousness from the action of sea water, while reducing the weight of concrete as much as possible and at the same time maintaining the necessary strength ; the temperature of the atmosphere at the time of casting ; the casting of the concrete, whether it be done by plastering and ramming or by spraying ; the proportion of the cement, sand and aggregate, and the size of the stones in the latter ; the length of time necessary after the hull is cast to allow the concrete to set sufficiently to permit the vessel to be launched. Until more experience is obtained from actual construction, it is very difficult to forecast the best method of designing the structure and the most efficient manner of carrying out the centring.

In view of the experience already available from the vessels engaged in coasting waters, there is every probability of ships of moderate deadweight being built in fairly large numbers for coasting work, especially so as the saving of steel is very appreciable. While it must, in the present stage, be considered as experimental work to a great extent, there is good reason to believe that during the interregnum period until economic conditions show some signs of returning to the pre-war state, the ferro-concrete ship will be actually in evidence round our coasts and the experience which will be obtained from the same, will show whether it is likely to develop into the building of vessels of larger tonnage.

In this connection it is reassuring to the general public to know that many plans have recently been approved by the Committee of Lloyd's Register of Shipping for vessels to be built of ferro-concrete, and the thoroughness of the technical staff of this institution is sufficient guarantee that every possible means will be taken toward making the application of this material for shipbuilding purposes a success, while at the same time helping forward our shipbuilders in what is to them at present a step into a somewhat unknown province.

FORMS OF ENTRANCE AND RUN.

IN the preface to his great work "The Modern System of Naval Architecture," published over 50 years ago, Scott Russell said : "It is a broad characteristic of recent model forms of ships that they have long, fine entrances, with a predominance of hollow waterlines. It is equally characteristic of bygone systems that they were full, round, bluff, short in the bows, with round, or at least straight, waterlines. It is an error to deduce from these broad facts the conclusion that there were no hollow waterline bows in old time. There were many such ships of all sorts and sizes, but their qualities, nature and proportions were practically unknown to naval architects." By one of the most distinguished naval architects of the time, Scott Russell was given the following secret of designing a good ship : "See that no part of the waterline of the bow should present a hollow curve."

As the result of many years of indefatigable investigation Scott Russell arrived at the conclusion that the form of forward waterlines which offered least resistance to the passage of a ship was that given by a curve of versed sines. For the run the form of least resistance, he considered, was given by a cycloid shape.

It has been found, by modern experiment, that Scott Russell was (within limits) not far wrong in his strong advocacy of the versed sine curve forward. The field of experimental investigation has been well-nigh covered by Froude, Baker, Taylor, Sadler, &c., and the fruits of their work are now at the disposal of those responsible for the design of ships. It is strange that, even at this time, the opinion expressed by the above-mentioned naval architect to Scott Russell, that "no part of the waterline of the bow should present a hollow curve," should still be held by many shipbuilders, but the fact remains that a large number are entirely apathetic to the results obtained on ship forms.

It is of the utmost importance that the forms of least resistance should be adopted, as the expenditure in power and in fuel with a bad form might at once ruin the commercial success of a vessel. It is essential to know the proper fullness of ship to adopt to fulfil certain conditions of speed and power, and it is equally important to have the shape such—to that particular fullness—which will ensure the minimum resistance and highest possible performance.

The choice of coefficients is most important as the fullness of entrance and run are determined thereby. But even with the proper coefficients for desired speeds it is possible to adopt the wrong character of entrance and run and so jeopardise the result of the venture.

In the realm of merchant ship forms, Baker's work has been of more guidance than probably that of any other experimenter Froude's has dealt almost exclusively with warship design, but the great bulk of shipbuilders are interested in a type of ship untouched by him. Taylor has covered a wide field of investigation and has given the results of many experiments, but his work stops short of full vessels of great displacement on a comparatively short length. Baker, on the other hand, has particularly applied himself to vessels of ordinary merchant ship proportions and fullness, and given some very remarkable diagrams illustrating the influence of shape of sectional area curve and load waterline on the performances of these. From a comparison of all the published results it is clear that the character of entrance and run which leads to minimum resistance at certain speed-length ratios is not that which affords the minimum at others. Thus Scott Russell's wave-line entrance is that which best suits a vessel of fine block coefficient, and differs very slightly from the type of line adopted in fast cruisers of the present time. If, however, such an entrance were tried in destroyers of still higher speed, the results given would be less satisfactory than those obtained by the round type of sectional area curve now adopted.

Similarly with vessels of full block and low speeds. It appears that within very narrow limits, depending on the speed intended, hollow lines in the entrance offer less resistance than straight or round lines. As the block coefficient is decreased, the range of speeds within which hollow lines offer an advantage becomes increased. An interesting and instructive diagram given by Mr. Baker in his paper "Notes on Model Experiments," read before the North-East Coast Institution of Engineers and Shipbuilders two years ago, well defines the field of application of hollow and straight line entrances. Very full ships of over ·8 block seem to be better served by round lines forward than by either straight or hollow.

A study of experimental results shows that the form of the after end in full ships has, if anything, a more dominating effect on

performance than that of the forward. It seems that the run must be easy, with no hump in the region of departure from the parallel body, and no sudden hollowing of the lines forward of the screw. In order to obtain the proper character of line aft it may be necessary to have the required displacement disposed mainly forward, that is, that the centre of buoyancy may be well forward, involving a tolerably full entrance and a fine run. This finding may be antagonistic to the beliefs of many shipbuilders, but one naval architect, with great experience in the design of full ships corroborates this finding as the result of his observations.

The attention of shipbuilders is being particularly directed, at the present time, to the construction of cargo ships. The average cargo ship has a length of 400 ft. and a breadth of about 52 ft. It so happens that Mr. Baker, in his paper, "Model Experiments on the Resistance of Mercantile Ship Forms," read before the Institution of Naval Architects in 1914, deals with the results of vessels of almost exactly these dimensions. His data is given in a form easy to comprehend, and a study of that paper will amply repay those who are anxious to adopt the lines of least resistance.

PUBLICATIONS RECEIVED.

[A short notice of any publication does not necessarily preclude the subsequent appearance of a longer review.]

Ships and Seafaring shown to the Children. By Arthur O. Cooke. London: T. C. & E. C. Jack, 67, Long Acre, W.C., and Edinburgh. 121 pages + 48 coloured plates. $6\frac{1}{2}$ in. × $4\frac{3}{4}$ in. × $\frac{3}{4}$ in. Price, 2s. 6d. net.

It would be a difficult matter to define exactly wherein lies the charm of the sea and everything connected with it, but the fact remains that to the average Briton the voices of the deep make an irresistible call, a call which ever finds an answering echo in his heart. It may be that with our islands cradled upon the ocean we are born with the smell of sea salt in our nostrils; it may be because the waters that surround our shores are at once the emblem of our security and of our national greatness; whatever may be the reason matters not; suffice it to say that the love of the sea is the heritage of our race. Our British poets from Shakespeare to Masefield have sung of the sea, of its glory and its romance, and they do but clothe in golden words the thoughts which we ourselves feel but which we cannot thus express. Our children too soon learn to love the sea, and as they grow, there swells within them that spirit of which men such as Drake and Nelson are made, and it is for us who witness the silent growth of this spirit to mould and develop it so that they too in their turn may become the bearers of her argosies across the farthest seas, for upon such depends the future of England's greatness.

This is not the first time we have come across this delightful series of books, and it is a sheer delight to find that Messrs. Jack have now turned their attention to perhaps what is more likely than anything they have done before to fascinate the children. The beautiful little book under review has evidently been written with the double purpose of satisfying the desires of the children to know more about the wonders of ships and stimulating their imagination so that they may want to know still more about the sea until they finally end by going to sea themselves. In fact this volume paints the delights of the sea in such glowing colours that many of the grown ups will probably yield to its allurements. We confess to having read it from end to end. A happy thought has led the author to speak of "the great war," when a reference to it was unavoidable, in the past tense, so that in the years to come the children will not have their imagination clouded by the terrible happenings which to-day make so sombre a page in our sea story.

Written in simple yet beautiful language throughout, the book deals with practically every phase of our vast mercantile marine, but no attempt is made to deal with the ships and men of the Navy, this being rightly reserved for treatment in a separate volume. Of the twenty-two chapters contained herein, each deals with a separate type of ship, such as liners, coasters, sailing ships, pleasure ships, &c., whilst special chapters are devoted to shipyards, salvage, the Panama Canal, and other subjects, a description of which is essential to the complete treatment of the great and comprehensive subject of ships. In addition to numerous black and white line drawings, there are 48 coloured plates printed on art paper, each of which is a little masterpiece in itself. It would be almost impossible to single out any one picture for special mention, all of them merit an equally high meed of praise, but we must confess to a particular liking for "The *Taiping* and the *Ariel*," depicting two clippers in full sail, and for the cold beauty of "An Ice Breaker." Finally, we may say that the book is well bound with gilt top, and altogether, both because of its contents and because of the tone which surrounds the whole volume, it should prove a most acceptable present to a young boy, and one which the elders can give with every confidence.

LIFEBOAT LAUNCHING BY THE GRAHAM "SINGLE" DAVIT.

The capabilities of the Graham patent "single" davit have been put to a practical test on numerous occasions during the past year or two, with good results, and on October 16, 17 and 18, practical demonstrations of the working of the davit were given from a wharf on the River Thames at the premises of the Port of London Authority, Blackwall. The inventor, Captain Graham, personally directed the demonstrations, which took place under conditions approximating to actual use at sea, except that the launching platform was stationary and not subject to the motion which obtains on board ship.

Under the Graham system the lifeboat is suspended centrally, ensuring raising and lowering on an even keel, thus avoiding the great danger of one tackle unhooking before the other. Moreover, the operation of lowering being under the control of one man only—as compared with six men on each fall in the case of suspension from two davits—the dangers of divided control are avoided, and the form of disengaging gear provided is such as automatically and with certainty unslips the sling as soon as the boat is waterborne.

The operating gear is all mounted on a self-contained steel derrick, with chain-tackle purchase in place of three-fold manilla rope. The hoisting-power is a hand-winch attached to the davit, and enclosed in a casing; a loaded boat can be hoisted by two men and swung out. Attached to the winch is a screw brake, by means of which one man alone can lower the boat at any speed required. Brake control is both simple and effective in purpose and design, and among other advantages which were fully demonstrated is the safety self-sustaining brake fitted to the gear, which automatically holds the load whenever the men cease heaving. The davit, however, is devised not only to accomplish the handling of lifeboats by manual power, mechanically aided, but to operate by motor power entirely. In principle and design the davit specially lends itself to the application of motor power. A variable speed motor of 4 h.p., fitted above or below the hand gear on the back of the davit, and all encased in one watertight gear-box, renders the davit absolutely self-contained, readily and instantly available for action, and incidentally provides a compact and simple lifeboat-launching appliance.

With this single davit and central suspension by single chain fall, boats can not only be put safely into the water on an even keel with the utmost expedition—a matter of seconds often sufficing—but the empty block and fall can be recovered ready for another boat at the rate of 60 ft. in one minute, without any risk of fall twisting or block capsizing, thus eliminating risks which frequently attend launches by the ordinary and old-fashioned systems. With the three-fold manilla rope falls—which in large ocean-going ships, having boat decks from 40 ft. to 60 ft. above water, amount in length to anything between 250 ft. and 360 ft.—the operation of "rounding-up" tackle for a second boat often proves difficult or quite impossible owing to twisting of falls, toppling of block, &c., and the ship in emergency is thus deprived of one of its boat-lowering stations.

The system has already been adopted by a number of shipowners. James Howden & Co., Ltd., of Scotland Street, Glasgow, and 9, Billiter Square, London, E.C. 3, are the proprietors and manufacturers of the Graham "single" davit, which has successfully passed the Board of Trade tests.

TEN YEARS OF ENGINEERING PROGRESS.

Institution of Engineers and Shipbuilders in Scotland.

Mr. Alexander Cleghorn, the newly elected president of the Institution of Engineers and Shipbuilders in Scotland, delivered his presidential address at the opening meeting of the Institution for the current session held in Glasgow on Tuesday evening. There was a large attendance of members.

Mr. Cleghorn, after referring to the extent to which the naval and military strength of the country depended on engineers, said that Mr. Hall Brown, in his admirable presidential address to the Institution in 1911, reviewed in a complete manner the progress made in marine engineering to that date in so far as it related to the merchant service. He thought it therefore interesting and instructive to continue the narrative. In considering this department of marine engineering my intention is, said Mr. Cleghorn, to glance rapidly at the main features of progress in marine propelling machinery over the past ten years, in order to make clear the position we have attained and the problems which that position presents. At the commencement of the period under review the steam turbine had become established for the purpose of marine propulsion, but its utility at that time was confined, more or less, to fast high-powered ships. It had proved its superiority over its old-fashioned opponent by its somewhat greater economy, its saving in space, and the ease with which the necessary high powers could be generated. The main development in this phase of its application was the increase which it made possible of the limited powers and speeds of fast vessels, and full advantage was taken of this opportunity in warships and in ocean liners. Propeller and turbine revolutions are always in opposition, and this perpetual antagonism becomes the more pronounced the more moderate the power. The essential compromise involved in the simple turbine arrangement must, then, have a limit of efficacy, and below a rough value of 18 knots the superiority of the turbine drive could not be demonstrated. But a ready realisation of the two types on their condensing plant, *i.e.*, their respective abilities to utilise the heat energy of the steam at the lowest pressures, soon led to the introduction of the well-known "combination arrangement," a hybrid grouping of the opposing systems, wherein reciprocating engines coupled to the wing shafts exhausted into low pressure turbines on the centre shafts at about atmospheric pressure. The result obtained was a distinct improvement over either the two methods already referred to. The arrangement was specially applicable for moderate powers, such as required by the intermediate class of liner, and for that purpose it has been largely used within the last ten years. Viewed in the light of subsequent advance, however, such a conjunction of dissonant elements could only mark a transient phase in a period of development. In the slow cargo-tramp vessel, the reciprocating engine results could not be approximately attained by the simple turbine arrangement. When we realise, however, the great proportion of pure cargo vessels in the mercantile shipping of the world, we understand what a wide field of employment was herein closed to the turbine; permanently closed unless some great step could be taken to render it practically applicable. These considerations then leave us with the general impression that about a decade ago the reciprocating engine had given place to the direct turbine for warship, fast liner, and channel types, had compromised it for vessels of the intermediate class, and had refused to recognise it as having any practical claims in that extensive class comprising low speed types.

Geared Turbine Development.

But even while these conditions obtained, the solution of the problem of achieving the general applicability of the turbine had come into view. It was, of course, the logical issue of the fundamental disagreement between propeller and turbine revolutions that a system of power transmission between primary and propeller shafts should be adopted. The natural method was that of mechanical gearing; and despite the difficulty of believing that gearing could be made to fulfil the severe requirements of such an application, the result is seen in the remarkable development of the geared turbine arrangement, its well-proved qualities, and the supreme position it holds to-day. Ten years ago it was little more than in its embryonic stage; about three years later it reached the experimental stage. Then followed its promotion to the proposal lists, and the stage of tentative application by the more courageous, until now we find it occupying the proud position of the standard type, demonstrating its universal application by the rapid displacement of the direct-coupled turbine, the combination system, and the reciprocator from the respective positions in which they had established themselves. Its superiority over these types in the essentials of economy, weight and space, is unquestioned, and its reliability is at least as certain. It has been extensively tried under all conditions of service, and competitive systems will undoubtedly find it difficult to attain to the all round excellence of its performance.

Hydraulic and Electrical Transmission.

Concurrently with the development of this mechanical system we find the growth of the rival methods of hydraulic and electrical transmission. Each system has its own particular advantages over the geared type, but neither can meet it on the all important grounds of economy and general applicability. The mechanical system at present makes the pace, and that pace seems likely to be soo severe for the other forms. The relative proportions of new shipping that embody the three types is highly significant of their respective advantages.

But gearing in its rapid advance has hardly halted at the single spur and pinion drive. We have now the double arrangement coming into use as the outcome of the success of the original form. This apparently minor development is obviously the special demand of the low speed ship, wherein the reduction ratio for suitable revolutions is very large; but it is not to be supposed that its utility is confined to the low-power, low-revolution equipment. It can also with considerable gain in weight and efficiency be applied to high-powered vessels. The great improvement due to double gear is mainly derived from its reaction on the permissible propeller revolution and from the turbine equipment, the different elements of which can be arranged for their respective limiting speeds, and form compact units of insignificant dimensions compared with those of the earlier days. In coincidence with these changes there has been a marked revival in the marine use of superheated steam. And so we find, all well within this decade, the reciprocating engine and the direct turbine—separately and in combination—achieve the zenith of their excellence, become stayed, and then supplanted by the rapid development of the geared transmission system, which, while endowing the turbine with new powers and perfections, incidentally renders it a more appropriate vehicle for the safe carriage of that vexatious but profitable medium—superheated steam. The latest achievement of this period of restless progress in steam propelling machinery is the super-heat geared turbine equipment, transcending its forerunners in practically all respects, and marking an epoch of advance without equal in marine engineering history.

A consideration of this advance on an arithmetical basis by an examination of tabulated average figures for different types of vessels may therefore be instructive. These are given in the following table. For all types case (*a*) denotes standard designs 9 or 10 years ago; (*b*) and (*c*) are present geared proposals with saturated steam, and with 100 deg. Fahr., superheat respectively; and while (*d*) is only so far actually utilised in type 4 it has been embodied in the others because of its possible and probable application thereto. The figures are based on the reaction type of turbine, but roughly similar results may be expected for other systems. As will be seen, no consideration is taken of the hydraulic and electrical forms of transmission; for, apart from

the difficulty of obtaining reliable figures for these, their practical test has been less extensive and severe, and consequently they are not yet on the same level of proved excellence :—

Comparative Figures for Different Steam Machinery Types.

Type of ship and machinery.	Relative fuel consumption.	Relative machinery weight.	Relative superficial areas. E.R.	Relative superficial areas. B.R.
1. Fast ocean liner—				
(*a*) 4 S. triple series D.C. turbines, cylindrical boilers, saturated steam	100	100	100	100
(*b*) 2 S. single geared turbines, cylindrical boilers, saturated steam	89	93	90	92½
(*c*) 2 S. single geared turbines, cylindrical boilers, 100° F. superheat	84·5	93·5	90	86
(*d*) 2 S. double geared turbines, cylindrical boilers, 200° F. superheat	75	88·5	86	77
2. Intermediate liner—				
(*a*) 3 S. combination machinery, cylindrical boilers, saturated steam	100	100	100	100
(*b*) 2 S. single geared turbines, cylindrical boilers, saturated steam	93	80	87	92
(*c*) 2 S. single geared turbines, cylindrical boilers, 100° F. superheat	88	81	87	91
(*d*) 2 S. double geared turbines, cylindrical boilers, 200° F. superheat	74	72	83	80·5
3. Cross-channel steamer—				
(*a*) 3 S. compound D.C. turbines, cylindrical boilers, saturated steam	100	100	100	100
(*b*) 2 S. single geared turbines, W.T. boilers, saturated steam	91·5	75	100	97½
(*c*) 2 S. single geared turbines, W.T. boilers, 100° F. superheat	86·5	76	100	97
(*d*) 2 S. double geared turbines, W.T. boilers, 200° F. superheat	73·5	68	95	86
4. Cargo steamer—				
(*a*) S.S. triple-expansion reciprocal engine, cylindrical boilers, saturated steam ...	100	100	100	100
(*b*) S.S. single geared turbines, cylindrical boilers, saturated steam	83·5	79	85	95·5
(*c*) S.S. single geared turbines, cylindrical boilers, 100° F. superheat	79	79·5	85	94
(*d*) S.S. double geared turbines, cylindrical boilers, 200° F. superheat	66	72·5	80	87·5

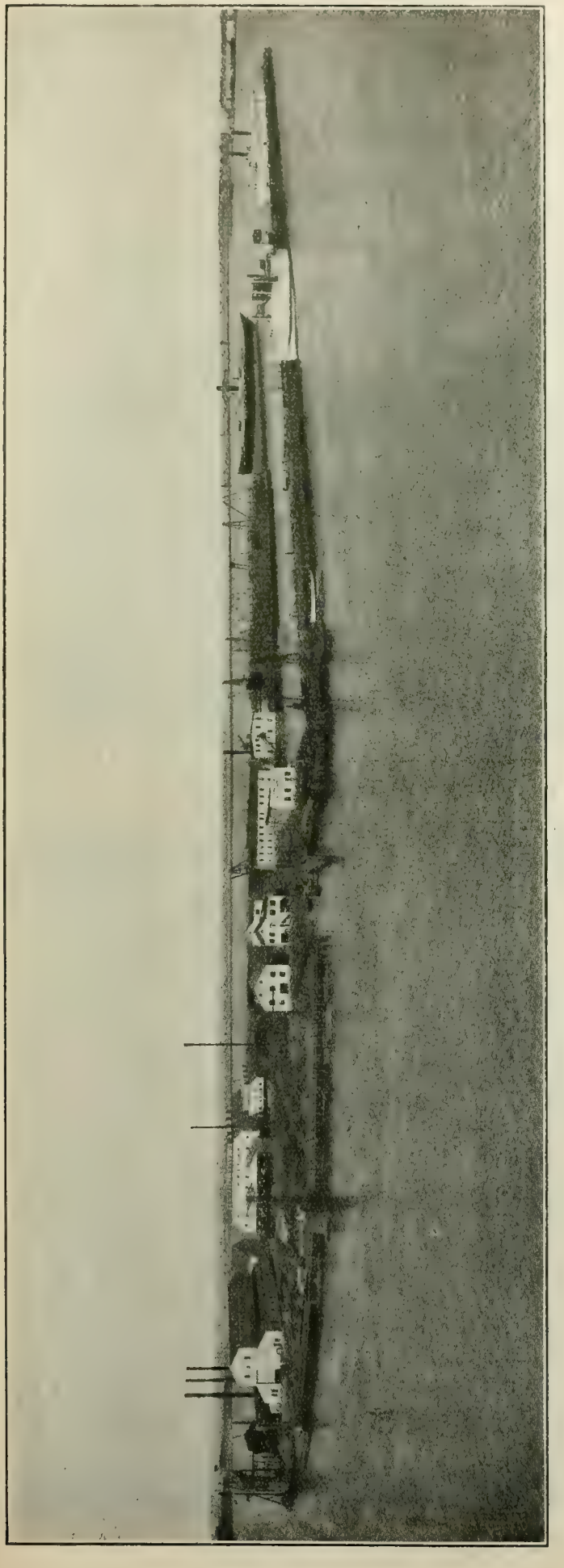
It must be understood that since actual construction varies with service conditions, these figures only represent fair averages, but the guidance they provide may be considered sound.

The Oil-Engined Ship.

After dealing in detail with the various types of vessels and machinery mentioned in the table, Mr. Cleghorn said : No summary of recent progress in the mercantile service could fail to include the advent of the oil-engined ship, made possible by the gradual evolution of the Diesel type of engine. A considerable amount of experience has now been gained, and in the cargo boat, to which its application is still limited, it has demonstrated many advantages and perhaps disclosed a few faults. The problem again is that of relation between coal and oil in supply and price. In particular cases with fixed routes the oil may be available, but the oil engine could scarcely yet be considered a suitable equipment for a freight ship with a roving commission. Apart from the necessity of available supply, the oil engine is not yet so far developed that it can use any kind of oil. At the time of its original projection into marine work it had to meet only the reciprocating steam engine with its heavy machinery and consumption of anything over 1½ lb. of coal per horse-power. It was therefore easy to demonstrate its advantages in comparison therewith, but with the development of the highly efficient turbine gear-drive this demonstration becomes of greater difficulty. Again the employment of the oil engine is at a certain sacrifice of propulsive efficiency, as the revolutions at which it is run are not quite suitable for the slow-speeded ship. Of course, geared transmission could be used as for the turbine, but this entails added weight, with a consequent reduction of its advantages. The hydraulic type of transmission would also seem to be quite applicable, and has been used in this connection. No doubt the difficulties will be overcome in time, and under the progressive policy which is being pursued by the Diesel Oil Engine Makers' Association rapid development may be expected. Progress up till now has been slow, however, and it must be accepted as the present condition that, even in those cases to which the Diesel engine is particularly applicable, it is, and no more than, on an equal footing with the modern steam plant.

Problems of the Future.

Having considered the stages of development by which steam machinery has attained its present position, we might now consider some of the leading features of that position in relation to the problems which they entail. The practice of superheating steam has long and successfully been established on land, and it is now making a rapid and brilliant reappearance in connection with marine work. The gain accruing from the use of high temperature steam is partly thermodynamic, partly hydrodynamic, and partly obscure. There is fortunately, in most cases, little obscurity about the actual benefit. To achieve this definite gain, however, we must submit to increased complication of the steam generating elements, deal with a somewhat more troublesome working fluid, and expect new and more severe working conditions for the machinery. We know that the effect of high speeds on machinery is to call out dynamic troubles little experienced with a less trying motion. And with high temperatures in boilers we find a corresponding aggravation of ordinary difficulties. The feed water must be very free of impurities. The arrangements for the filtration of oil from the feed water must be ample, of a high order of excellence and carefully supervised. Similarly, the boilers must be safeguarded against salt, condenser leakage must not exist, and frequent examination of the superheater elements is necessary. But perhaps the main trouble with superheat is metallurgical, being the difficulty of finding metals capable of withstanding the sustained or intermittent effects of the high temperature steam. Particularly is this the case with the turbine in which very fine operating elements are subjected on one hand to the long continued attack of high temperature steam jets, and on the other to a sudden attack while in a relatively cold condition. And failures are largely due to the weakening of the blading at high temperatures, and the effects of rapid admission of high temperature steam to the astern elements under manœuvring conditions. To overcome the failure of blading and the cracking of cast-iron castings, are two problems of exceeding importance. The ideal blading alloy has yet to be found, although several materials have resulted from the pursuit of it. The astern difficulty may be overcome by allowing only saturated steam to reach that element. This solution is not elegant and suggests the adoption of transmission systems other than gearing which do not require separate astern units. The speaker went on to deal with the respective advantages, and drew a comparison between mechanical hydraulic and electrical systems of transmission, and in conclusion said he had endeavoured to sketch within the restricted compass of an address the very recent progress and present attainments in a great field of effort. The sketch was necessarily imperfect and incomplete, but as advance upon advance was made, the subject grew in variety and magnitude. New problems arose as the old were overcome. Advance was more keenly opposed with each step achieved, and nature guarded her secrets ever more tenaciously.



General View of the Plant of the Standard Shipbuilding Corporation.

THE PLANT OF THE STANDARD SHIPBUILDING CORPORATION, NEW YORK.

Whilst the loss of merchant tonnage caused by acts of war has reached a figure which represents a considerable proportion of the world's total tonnage, it must not be forgotten that the lack of repairs, the lack of care of vessels in operation, and the falling off in the building of merchant ships in the first two years of the war have together been responsible for a general loss of tonnage which is considered by many to be in excess of that actually caused by acts of war. The great shortage of merchant ships thus produced, a shortage which is greatly enhanced by the requirements of the naval and military forces of the countries at war, has led not a moment too soon to the development of shipbuilding in almost every country in the world, and in no country is the demand for tonnage being met by more strenuous effort than in the United States of America. The policy of standardisation is being adopted, and many shipbuilders are extending their yards in order to turn out cargo vessels of a particular type at an extremely rapid rate.

Amongst these we may mention the Standard Shipbuilding Corporation of New York, which has recently re-organised and extended its yard, so that beginning in January, 1918, it will be able to build from 140,000 to 150,000 tons (deadweight) annually, as against 30,000 tons which was previously the maximum annual building capacity of the yard. A vessel of standard type is constructed which has been designed by Mr. Theodore E. Ferris, naval architect, of New York. These vessels are 392 ft. 6 in. in length over all, and of 7,300 tons deadweight, with three Scotch boilers, capable of generating enough steam for a 2,500 h.p. engine. These ships, designed for a speed of 10½ knots, formed the subject of a supplement plate in our issue of July 5, 1917. It is said that the Corporation will be in a position to turn out 24 of these vessels every year.

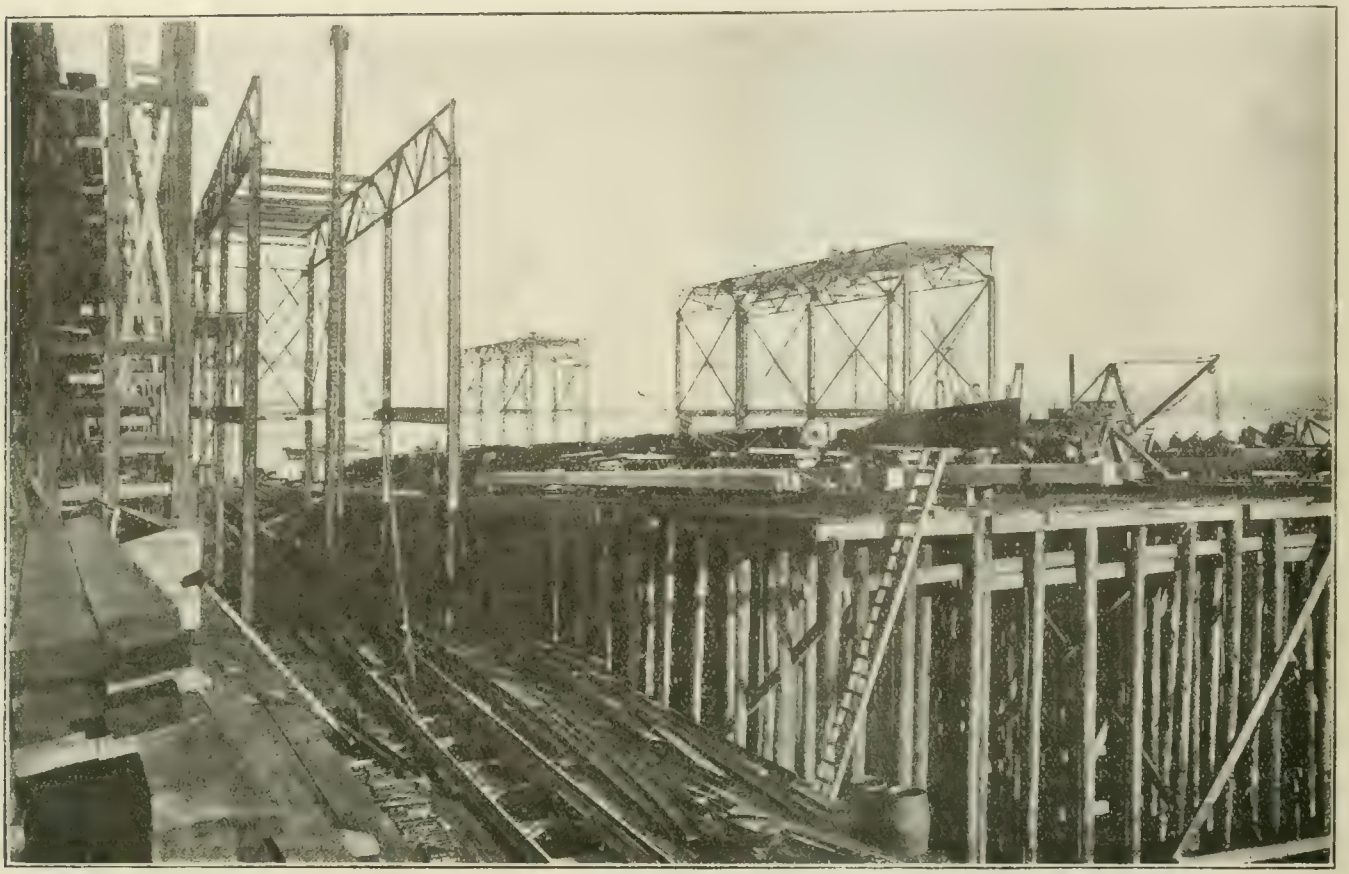
The shipyard of the New York Standard Shipbuilding Corporation is located at Shooter's Island, in New York Harbour, about 500 ft. from Mariner's Harbour, Staten Island. Shooter's Island has a circumference of about three miles and a superficial area of 36 acres. The Corporation has, moreover, obtained permission from the Harbour authorities to fill in a considerable piece of submerged land to which it has legal rights. This, when reclaimed, will give the plant an additional 20 acres, on which they will be able to build ways for vessels of a much larger size than those they are building now, including tank ships and all types of naval vessels.

The original plant on Shooter's Island has been entirely remodelled. While at the time of purchase by the Corporation a shipbuilding plant existed on the property, it lacked most of the essentials for economical production, both in buildings and equipment. Every facility has now been brought up to a modern standard.

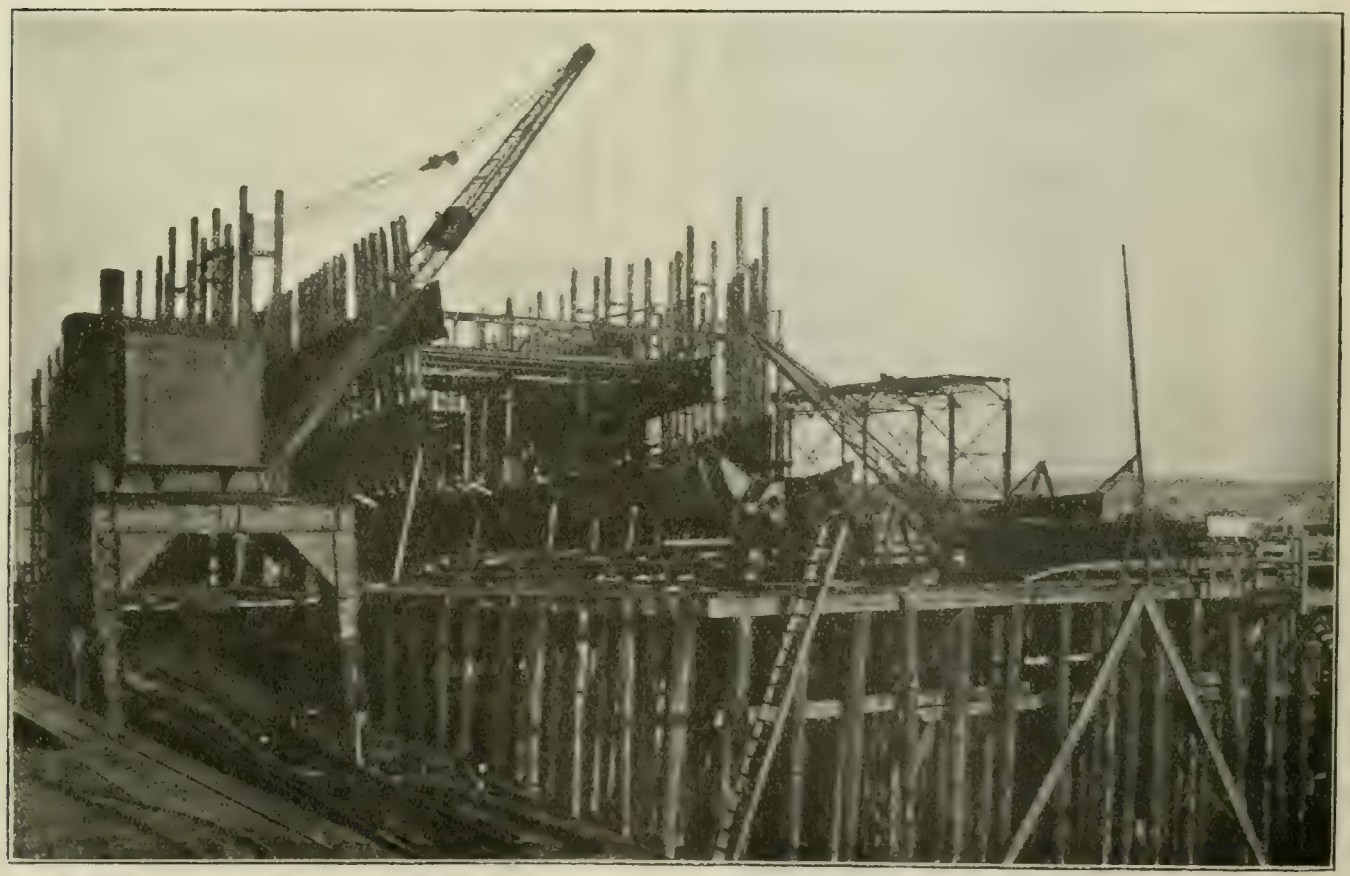
One feature of the remodelling was the modernising of the drive of the various machine tools. Originally each machine tool—shears, punch, rolls, &c.—was driven by steam power. With such a drive, rapid and economical production was an impossibility, so Westinghouse electric motors were installed throughout. The application of these motors proved, however, quite a problem, for a large part of the machinery was of sturdy Scotch construction and nothing was known in the States about its power requirements. A careful study of each tool was therefore made by the motor manufacturers, and a system of belted motor drive installed that has proved satisfactory.

It has been found advisable to have the offices of the entire plant in one building in order that the work of the various departments may be co-ordinated and handled in the most efficient manner. A new two-storied office building, 150 ft. by 35 ft., has been constructed, the first floor being occupied by the General Offices and by the Superintendent of the plant, and the floor above supplying the

BUILDING A STANDARD SHIP IN THE STATES.—THE



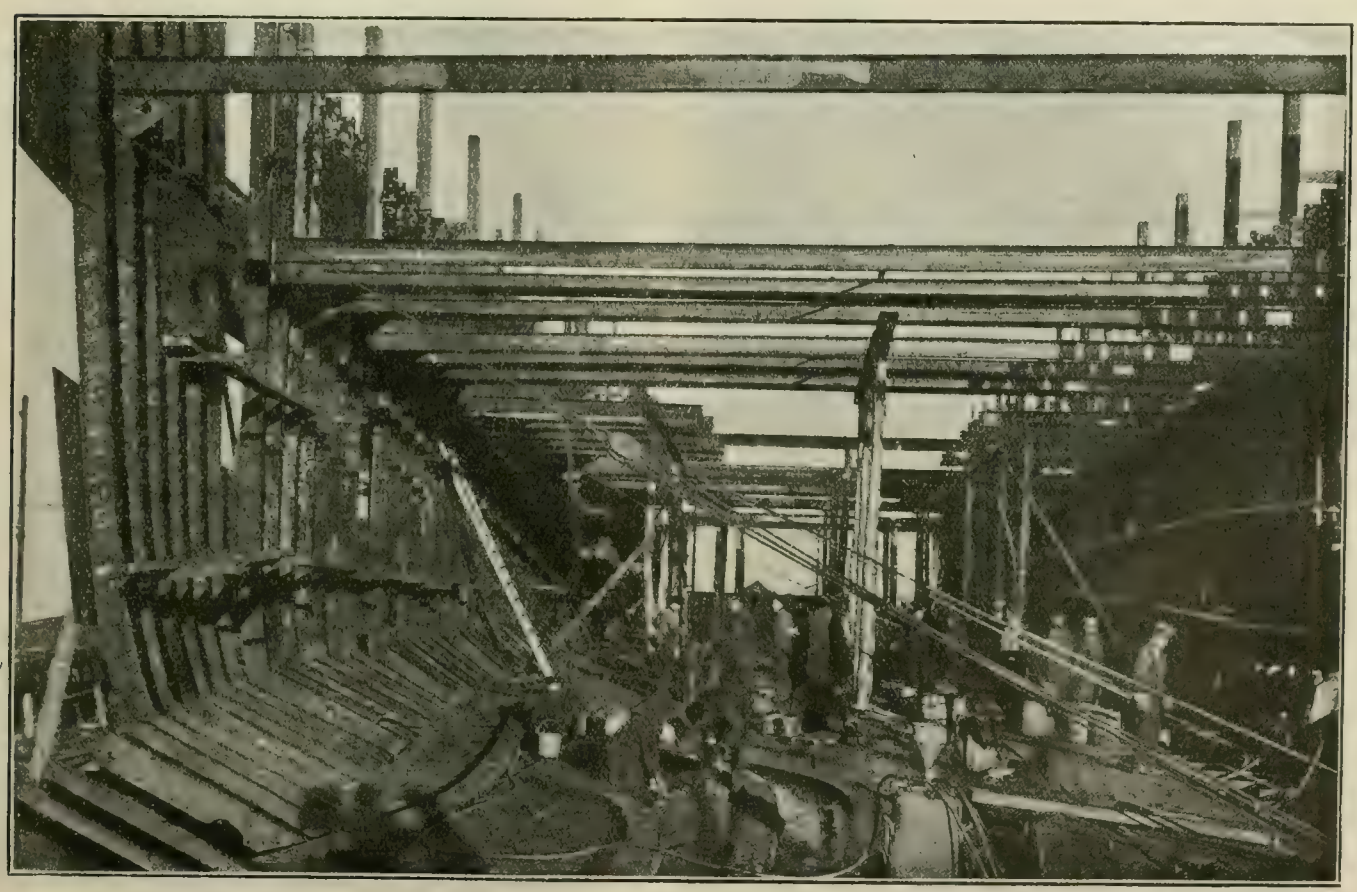
Derrick Towers in Course of Construction alongside New Building Berths.



Framing a Standard Ship.

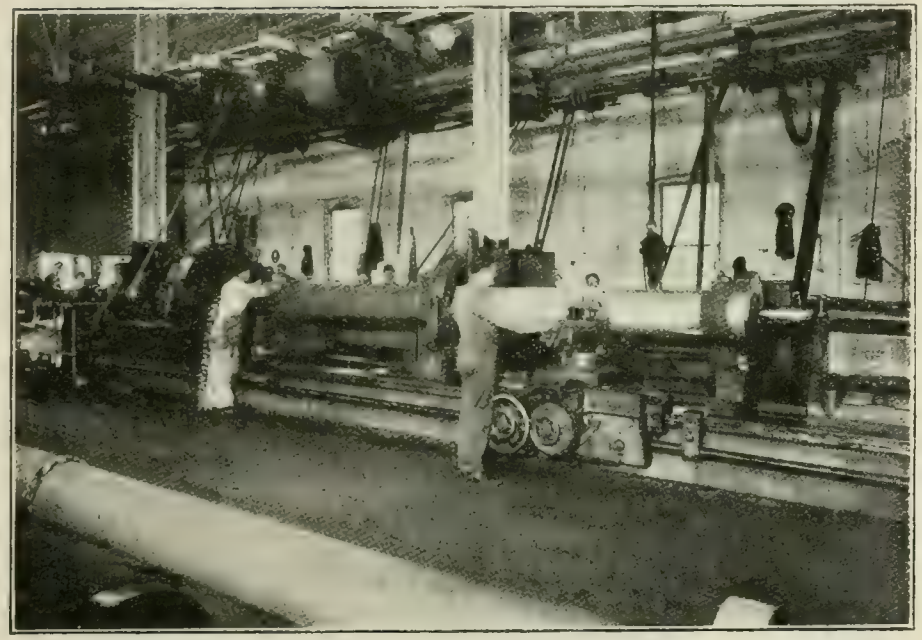
STANDARD SHIPBUILDING CORPORATION OF NEW YORK (*See page* 393).

Parts of Finished Material Laid Out Ready for Erection.

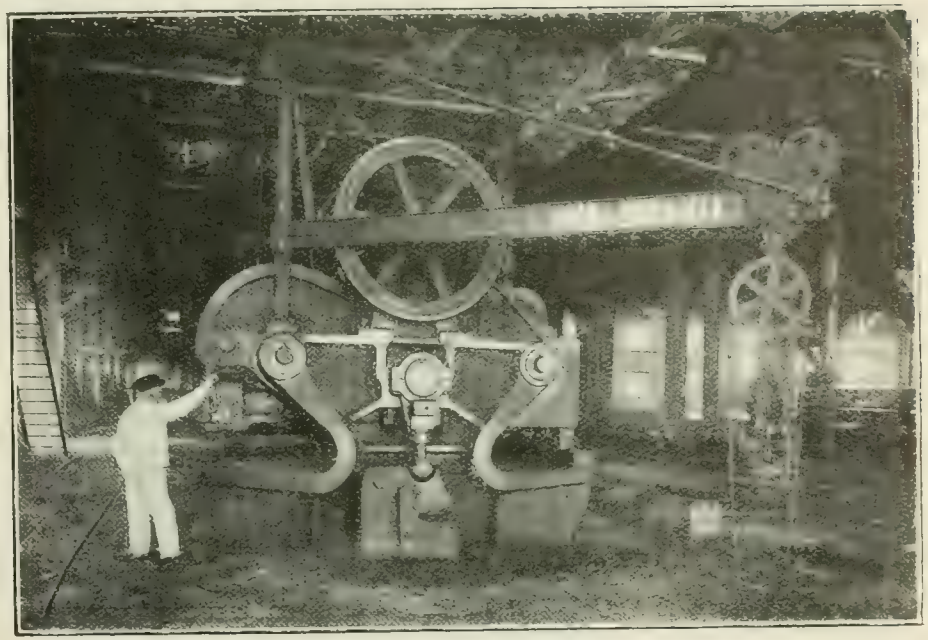


View of Hull of Standard Ship.

FOUR OF THE STANDARD SHIPBUILDING CORPORATION'S MACHINES (*See page* 393).



Turning a Propeller Shaft.



Triple Power Punch Plate and Angle Shears.

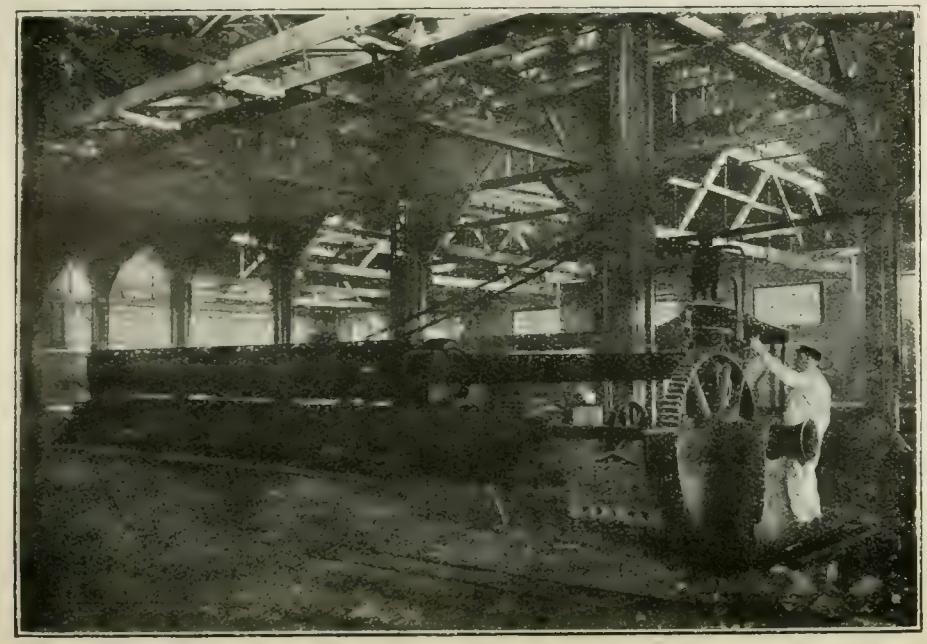
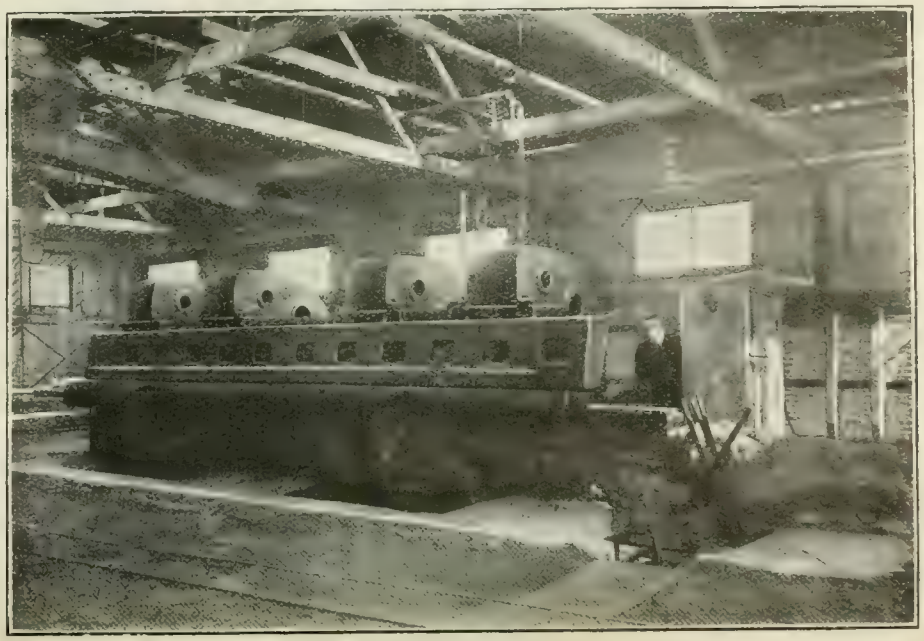


Plate Bending Rolls in Plate Shop.



26-ft. Hydraulic Garboard Plate Bender.

necessary facilities and space for the two sections of the naval and mechanical engineering staff. The entire plant has been equipped with telephone and fire-alarm systems, which give excellent service. As was anticipated, the telephone system is an indispensable saver of time for foremen and workmen. Regular reports are made over this system by our night watchmen, thus insuring constant vigilance.

It was of the utmost importance to provide a shop properly equipped with machinery and modern tools in which the boilers for the new vessels could be built. This was necessary not only to avoid relying on outside builders, but particularly to secure the greatest economy in this part of the work. A building 120 ft. in width by 400 ft. in length has been erected, to be used as a boiler shop, all the machinery and tools for its equipment, among which are powerful electric travelling cranes of 50 and 75 tons capacity having been acquired.

The machine shop is equipped with first-class tools, in which are handled all drop forgings used in the engines for the new bottoms. As mentioned before, the machine tools in this shop were formerly driven by steam-power line shafts; but while the line shafts have been retained for the original tools, they are now motor-driven. All the new machines which are being installed are driven by individual motors.

In order to become independent of outside help in the production of the parts needed in construction, the machine shop has been extended to twice its original size, and all the new machine tools required for this addition have been purchased.

To prepare steel plates and frames, there is a large and well-equipped plate and angle shop of steel and fireproof construction; in fact, all the main shops are thoroughly fireproof.

Throughout the whole of the work of extension, the necessity of increasing the capacity in the very near future by purchasing additional equipment has been kept in view in order to prepare enough steel plates and frames for two ships per month. The machinery of the carpenters' and pattern shop has been thoroughly overhauled and a good many new modern tools have been installed. It is now one of the most efficient shops of the whole plant. It was also found necessary to enlarge the blacksmiths' shop and its equipment, the latter consisting of steam hammers, furnaces and other similar material. These improvements were necessary in order to keep pace with the additions made in the machine shop. The pipe shop is also well equipped and is one of the important branches of the plant. To complete its equipment, powerful hydraulic machines have been installed with which all the work from this shop will be accomplished with economy of time and money.

The power plant is located in a building constructed of bricks and cement, in which the boilers, generators and coal bunkers are installed.

A powerful horizontal engine connected to a 1,000 h.p. dynamo supplies the power required in the shops when everything is in working capacity. There is also an emergency horizontal engine connected to a 500 h.p. dynamo, which would be sufficient to supply enough power to carry on the essential requirements of the works should the main engine be out of commission. However, in view of the magnitude of the work, a third power unit has recently been provided to furnish additional energy should reserve power be needed. The power house is fitted with three air compressors of 8,000 cubic feet capacity, which is more than necessary to meet all requirements. One of these is used as an auxiliary, as only two air compressors are needed for the daily work.

In the boiler room seven boilers with a combined capacity of 2,500 h.p. are installed. Five of these are in constant use, while two are held in reserve and may be utilised in case of accident or while the others are being cleaned. The coal tower is of 1,000 tons capacity and a lift is used for the rapid and economical unloading of ships. The air accumulators, tanks for portable water and engines for pumping sea-water, are located next to the power house.

A complete system of pipes has been installed for the efficient conveyance of air, steam, and water into all of the shops and buildings. The air system feeds all the compressed air tools and the steam system furnishes heat to the shops and offices. The water line supplies water to all sections of the plant, and provides a dependable auxiliary supply of water which can be used in case of fire.

Six main slipways and seven wharves have been completed. On these wharves have been built 14 steel towers and 52 derricks of five tons capacity each, some of the hoists being worked by compressed air and some by electricity. Although it is expected with six slipways already built, to be able to attain the desired increase in production, as a measure of precaution, and also in view of increasing further the general capacity of the plant, it has been planned to proceed shortly to the building of an additional way. Particular attention has been given to the repairing of the docks, which were found in poor condition; also to the foundation and filling in of the wharves forming the boundaries of the plant.

This necessity for repairs and expansion was urgent because of the bad condition in which many of the docks and wharves were found; also for the reason that the docks which were originally built were not of sufficient capacity to receive and care for the larger supplies contemplated. A standard-gauge railway track has been laid down, covering the whole surface of the island, which facilitates the transportation of materials from the place of unloading to the shops and the vessels in course of construction. The rolling stock consists of 30-ton wagons, hand trucks, a locomotive for general use, and several locomotive cranes of various capacities from 5 to 50 tons, which are an important factor, not only in the unloading and distributing of the materials, but also in placing and handling of heavy frames and plates.

Dredging work is being actively carried on by the contractors to facilitate the launching of ships and to provide an adequate anchorage at the docks for steamers bringing in supplies and materials. Thus far, over 250,000 cubic yards have been excavated along the front of the docks and wharves. It is intended to continue this dredging work, which will soon be completed. The reclamation of various parts of the island has been begun; when the entire work is done a total of 56 acres of land in the island will be available. There remains to be filled in only the section alongside the slipways and dykes, a work which will require some 300,000 cubic yards of material.

An important branch of the enterprise will eventually be the repairing and refitting of vessels of all kinds in the shipyards, to which end a first-class repair shop is being established. Further headway in this direction has been hindered by the necessity of bending all efforts toward the building of the ships under contract. After the completion of the first ships ordered, and when all the machinery and tools contracted for have been received, it is hoped to be able to handle repairs and take advantage of this very profitable line of work. For these repairs, as well as for the shipbuilding work, there is a marine railway which is economical in operation and permits the docking of ships of considerable size, whilst for the transportation of our workmen to near-by places, the company has two ferry-boats, each of which can accommodate 1,200 workers, besides a motor launch with a capacity of 70 men. There is also a 120-ton petrol launch for towing steamers and transporting the material, this launch also being used, when needed, to take workmen to any required destination.

The illustrations on pages 393 and 396 give a good idea of the extent, capacity, and all round efficiency of the plant and structures. A bird's-eye view of Shooter's Island, showing the extent of the plant, is given on page 393. On pages 394 and 395 photographs of various parts of the shipyard are reproduced; and the photographs on page 396 show typical machines in the shops.

BRITISH SHIPBUILDERS AND NEUTRAL SHIPOWNERS.

At a largely attended meeting of the North of England Steamship Owners' Association, held on October 17, under the presidency of Mr. J. W. Witherington, the question of the present and future shipbuilding position of this country was fully considered, and attention was directed to the very grave outlook for the British mercantile marine after the war, in view of the impossibility, under existing and prospective conditions, of shipowners being able to replace the serious diminution of their mercantile fleets by new vessels.

Mr. R. S. Dalgliesh moved the following resolution :—"That this meeting of British shipowners, members of the North of England Steamship Owners' Association, having regard to the national interests, views with deep concern the fact that large orders have been placed with British shipbuilders by neutral shipowners at £25 per ton for delivery after the war, as and when the Government may grant permission, with a further provision that any increase in material or wages over existing costs shall be added to the price of the contract. This is a serious menace to the maritime supremacy of Britain. The price paid represents at least four times pre-war costs, and such a capital outlay could only be justified on the assumption that this increased cost is provided out of profits.

"It is well known that neutral owners have accumulated huge funds out of profits, and these contracts prove that such funds are now being earmarked and used for the development of their mercantile marine. On the other hand, British shipowners, owing to the exigencies of the war, have had their profits reduced to practically pre-war basis, and at the present time very many are trading actually at a loss.

"The amounts recovered for vessels lost cannot possibly be sufficient to replace tonnage at anything like such a figure. It follows, therefore, that to compete with these neutral owners new capital must be introduced, and this is not commercially practicable. It seems, therefore, necessary, in the national interests, that the Government should revise their policy, and take such steps as will enable British owners to rehabilitate the British mercantile marine, and this meeting urges the Shipping Controller to make such representations to the Government as will render this possible."

ENGINEERING AND SHIPBUILDING TRADES FEDERATION.

The Executive Council of the Amalgamated Society of Engineers have passed a resolution recommending that the society should secede from the Engineering and Shipbuilding Trades Federation.

The Federation was formed some years ago for the purpose of co-ordinating the interests of trade unions which, in the general course of industry, had become to some extent interwoven, in order that collective action could be taken in dealings with employers. Although the engineers are by far the largest body of men connected with the Federation, their representation upon the Federation is only equal to that of the smaller unions.

The Executive Council hold that the only principle on which an effective federation could be based was that of representation according to numerical strength, with separate provision inside the main body for the consideration of problems specially affecting the various great industrial interests concerned, but there is no hope of securing this by the internal reformation of a body on which a large number of over-represented small societies hold the majority of the votes. "In fact, the whole influence of the Federation," said Mr. Robert Young, the general secretary of the A.S.E., "tends not towards solidarity, but to the perpetuation and artificial encouragement of the small sectional societies. I am in favour of amalgamation, and it is because we believe that the Federation, and our connection with it, is one of the most serious barriers to amalgamation, that we ask the members to consider carefully whether, in their opinion, it is desirable for the society to retain its affiliation."

WAR RISKS INSURANCE SCHEME.

"Approved" Vessels and Transhipment.

With the approval of the Board of Trade, the facilities of the above scheme are now extended by the following addition to the certificate of insurance, viz. :

"It is hereby agreed that this Certificate of insurance shall apply to goods carried on any vessel on the British register, the within expressed limitation to vessels insured under His Majesty's Government's War Risks Insurance Scheme notwithstanding."

Referring to the notice, of which the following is a copy, published by the War Risks Insurance Office about May 4, 1917, viz. :—

"In view of the uncertainty, in the existing conditions, as to the steamer or steamers, into which transhipment may be made during the ocean voyage, it has been decided by the War Risks Insurance Office, with the approval of the Board of Trade, that if the original coasting steamer (if any) and ocean steamer are both eligible under His Majesty's Government War Risk Insurance scheme, the warranty of shipment by an approved vessel shall be deemed to have been complied with for the whole voyage irrespective of any subsequent transhipment;"

it has now, with the approval of the Board of Trade, been further decided that in any case in which goods are shipped under a "through" bill of lading, issued by or on behalf of any British Steamship line, so that the goods shall be carried for the main ocean voyage from the transhipping port to their destination in a British steamer or steamers of such line, then the said goods shall be insurable under the Government Scheme at and from the port of original shipment, even though the first part of the voyage be made in a steamer not otherwise entitling to insurance under the scheme.

SWEDISH SHIPPING LOANS.

In spite of handsome war profits, Swedish owners continue to apply for loans from the funds established for that purpose. Recently the sum of £134,000 was granted, the largest single amount being £33,100 to the Stockholm firm "Nord," for a new steamship of 6,500 tons. Numerous applications for the new half-year amount already to £311,000, including £102,000 applied for by the Reederei Nordstjernan. The last-named firm is on the way to ranking with the Transatlantic firm as one of the leading Swedish line owners. Before the war, the Nordstjernan firm owned 16 vessels (34,000 gross tons register), including three motor ships. Up to the beginning of 1917 the fleet had been increased by 21 new vessels (including seven motor ships) and 50,000 tons. The firm has orders for new motor ships placed in Denmark and Sweden to the value of more than £1,100,000, the price per ton being exceptionally low, since the contract was placed in 1914. The new vessels are all to be put in service on the company's lines to South America, the West Indies, and the Pacific coast of North America. The company applied for a loan of £41,500 in the summer of 1916 in respect of a motor ship (6,450 tons) to be delivered in the autumn of 1918. At the instigation of the Minister of Finance, this application was withdrawn and the new construction postponed. Now the application is renewed and it is still hoped to obtain the vessel some time next year. The receipts for 1916 sufficed only to pay for two motor ships which should be delivered from Burmeister & Wain this year. The company wishes for a loan of £61,000 to pay for their first Swedish order, a 9,200-ton motor ship, being built by the "Gota" works and due to run its trial on October 30, 1918. It is noteworthy that this company makes such considerable use of the State loan facilities and, for the rest, pays for new constructions from income; the capital has not been increased.

The Transatlantic company is asking for a further loan of £27,600 after having received an advance of £55,200 last year. The firm of Erik Brodius, Stockholm (formerly Gefle), has applied for £33,100. The largest Swedish owners are thus making free use of State loans.

GENERAL NEWS SECTION.

PERSONAL.

Sir William Tatem, Bart., sole proprietor of the Tatem Steam Navigation Company, Ltd., Cardiff, has given £25,000 for a laboratory at South Wales University College.

Captain George Soulsby, of Hull, Senior Member of the Hull Trinity House, whose death occurred on September 28 last, left estate valued at £2,715, with net personalty of £312.

Captain James Harrison died recently at Barry, at the advanced age of 83. He had a remarkable knowledge of localities, and had on many occasions sailed round the coast of the British Isles without a chart.

Captain Obadiah L. Murphy died at Yarmouth, Nova Scotia, on October 13. He was well known in shipping circles in South Wales, where for a considerable period he acted as ship's husband for Hugh Hogarth & Sons, of Glasgow.

Arnold Tustin, an apprentice with Sir C. A. Parsons & Co., Ltd., Heaton Works, now a cadet in Durham University O.T.C., has been awarded the 1917 scholarship of the North-East Coast Institution of Engineers and Shipbuilders.

The death has occurred at Mauritius of Mr. Alexander William Hewson Lillie, of Whitby, Yorks, brother of Mr. T. H. Lillie, of Cayzer, Irvine & Co., Ltd. He had been a master in the International Line Steam Ship Company, Ltd., Whitby, for a number of years.

The death has occurred of Mr. William Weatherall, Engineering Manager of the Mercantile Dry Dock Company, Jarrow-on-Tyne. He was 55 years of age, and served his apprenticeship at the Wallsend Shipping Works. He had also held the appointment of foreman fitter with the Mercantile Dry Dock Company and the Tyne Improvement Commission.

To commemorate his birthday, Mr. Robert Readhead, of South Shields, has generously sent a cheque for £25 to the Secretary of the Tyne Mariners' Benevolent Institution, to enable the committee of the institution to continue their annual war bonus of £3 to the most necessitous old mariners and their widows, of whom there are residing at South Shields 87, out of a total of 151, and including 58 in North Shields, six residing elsewhere on Tyneside.

The death occurred on Wednesday, October 17, after a prolonged illness, of Mr. George Todd Symons, senior partner in the firm of G. T. Symons & Co., shipowners and brokers, of 4, Lloyd's Avenue, London, E.C. 3. Mr. Symons was a director of the British Electric Traction Company, Ltd., the Chinese Engineering & Mining Company, Ltd., the Lagunas Nitrate Company, Ltd., the Nitrate Railways Company, Ltd., and the Salvador Railway Company, Ltd.

The death occurred, on October 18, of Mr. Joseph Hoult, the well-known Liverpool shipowner, who was found dead in bed at his country residence, Bowscar, Penrith. He was born in Liverpool in 1847, and began his career as an apprentice to a firm of shipbrokers in Liverpool. At 21 years of age he began business on his own account as a shipbroker. Mr. Hoult established the firm of Joseph Hoult & Co., steamship owners, South Castle Street, Liverpool, and built up a very prosperous business. In August last he celebrated his 70th birthday by a gift of £70,000, being £1,000 for each year of his life, in 5 per cent. War Loan stock, for distribution in aid of objects outside the war, which he said were badly in want of funds to carry on. Of that amount £30,000 was allotted to the mercantile marine engineers and firemen, and £5,000 was given to the Liverpool Cathedral. He had previously given large sums to Liverpool and other charities. In 1913 Mr. Hoult gave £1,000 towards the provision of aeroplanes, and he has generously assisted numerous war funds. Soon after the German piracy was begun he offered to pay £500 each for the next four German submarines destroyed by any ship of the British mercantile marine or a British trawler. For a few years Mr. Hoult was a member of the Liverpool City Council. He sat as Conservative member of Parliament for Wirral, Cheshire, from 1900 to 1906.

STATE OF SAN PAULO.

In *The Times* of October 20 the following extracts are given from the address to the Legislative Congress of the State of San Paulo on July 14 last, by the President, Dr. Altino Arantes :—

Maritime activity markedly reflected the intense perturbation suffered by navigation owing to the European war. The number of vessels and the tonnage continued to decrease in 1916 as compared with 1915. During the year 1,268 steam and sailing vessels, aggregating 2,650,223 tons, entered the port of Santos, while in 1915 the number of vessels was 1,396, aggregating 3,172,278 tons. The sailings were respectively 1,272 vessels, aggregating 2,651,470 tons in 1916, and 1,397 vessels, aggregating 3,177,126 tons in 1915. In consequence of the dangers of navigation and of the extraordinary prices of coal, maritime freights soared very high, enormously increasing the cost of the goods carried.

Since the year 1915 surveys have been in progress in connection with the alterations to be made to the river navigation in the district of Ribeira do Iguape, which become necessary once the railway reaches Inguia, in order to establish a combined remunerative service between the two undertakings. In accordance with the provisions of the law No. 1,418 of September 14, 1914, on May 30 last the contracts of the Sul-Paulista River Navigation Company were renewed and the terms thereof extended for another three years. The State will not pay in future a subsidy to any coast navigation service, the coast continuing to be supplied, although in a deficient manner, by the services of the Federal Navigation Lines. As a solution of the expedient proposed by me to Congress in my first message, you passed the law No. 1,538 of December 30 of this year authorising the Government to guarantee the interest of 6 per cent. on a capital up to 20,000 contos for 20 years to a navigation company to be formed to carry on the service between Santos and national and foreign ports. Considering that, in order to arrive at a satisfactory solution of this scheme, they ought not to dispense with the collaboration of all parties interested in such a great undertaking, the Government promoted a meeting of manufacturers and capitalists, who were entrusted with a complete study of the problem and of the preliminary work of organising a concern to which finally the regular service could be entrusted by contract.

PORT NOTES.

Port Sudan.—In the report of the Sudan Government Railways for the year ending December 31, 1916, the Port Officer states that the number of vessels entering during the year were 286 British (632,280 tons) and 31 foreign (59,619 tons). The following figures show the international tonnage of vessels visiting the port for the past 10 years :—

January 1 to December 31,	British tons.	Foreign tons.	Total tons.
1907	248,833	63,937	312,770
1908	269,626	64,625	334,251
1909	293,507	90,185	383,692
1910	350,455	81,109	431,564
1911	489,499	211,611	701,110
1912	527,198	173,115	700,313
1913	527,845	194,025	721,870
1914	642,419	154,859	797,278
1915	646,266	36,659	682,925
1916	632,280	59,619	691,899

There was an increase in the number of merchant vessels calling for bunkers during 1916, totalling 31, as against 19 in the previous year. There were 11,500 tons supplied.

FROM OUR CORRESPONDENTS.

CLYDE DISTRICT.

(From Our Own Correspondent.)

Glasgow Dockers' Wages.—Another demand has been made by the dock labourers at Glasgow for an advance of wages. The last advance was granted in June, when the general cargo rates were raised by 1d. per hour, and payment for other kinds of work were increased in proportion. On the present occasion the dockers demand an advance of 2d. per hour for day and night work for general cargo; 1d. per ton for all classes of ore, and 36 per cent. on the present rates for grain-weighing work. In the case of the discharge of iron ore cargoes, the men request that where grabs are employed time rates should be paid from start to finish of cargo. The men's demands, which have been refused by the local employers, have been submitted to the Committee on Production for settlement.

Engineers and Shipbuilders.—The syllabus which has been prepared by Mr. E. H. Parker, secretary of the Institution of Engineers and Shipbuilders in Scotland, for the ensuing session, is one of great interest to all members of the twin industries in the district. We deal elsewhere with the presidential address of Mr. Cleghorn, the new president. Among the subjects to be submitted for discussion during the session are the following:—"Premium Bonus Systems," by Mr. W. H. Riddlesworth, M.Sc., M.Eng.; "Electrical Propulsion of Ships," by Mr. William B. Hird, B.A.; "The Effect of War on Shipbuilding," by Mr. James Craig; "Apprenticeship Training," by Mr. A. P. M. Fleming; "The Forth and Clyde Ship Canal Scheme," by Mr. C. P. Hogg; "The Question of Scientific Management," by Mr. James Richardson, B.A.; "Notes on Welding Systems," by Captain James Caldwell, R.E.; and "Photo-Elasticity," by Professor E. G. Coker, D.Sc.

Shipbuilders and Water Supply.—One of the problems with which the municipality of Greenock is faced at the present time is a threatened shortage in its water supply. The growth of industry, and especially of shipbuilding, and engineering has been so great in the district, that the authorities are finding some difficulty in providing the necessary facilities for further expansion. The Town Council is, of course, hampered by the restrictions placed on new improvement schemes while the war lasts. In connection with the water supply, several shipbuilding firms have made complaints to the effect that they are likely to be hampered unless an improvement is made soon. Scotts Company, for instance, have said that in addition to the cost of pumps for supplying water from the Clyde, the water in the vicinity of their yard is so dirty that probably exception would have to be taken to its use. Caird & Co. have expressed a view to the same effect. From inquiries made on behalf of Greenock Corporation, it is learned that in Glasgow and Aberdeen the water used for the testing of ships' tanks is drawn from the town's supply in each case. The question of augmenting the supply at Greenock is under consideration.

Shipbuilders and Munitions Act.—For failing to pay a number of workmen a bonus awarded under the Munitions Act, a firm of Clyde shipbuilders were fined £100 by a Munitions Tribunal in Glasgow last week. It was stated by the President of the Tribunal that the firm in question had, by their action, rendered themselves liable to a penalty of £5 per day per man, for each day the contravention continued, and as there were 300 men concerned, the total penalty which could have been imposed under the Act was £54,000. In delivering the Tribunal's judgment, the President said the action of the employers was most irregular, and to countenance it would be to defeat the main purpose of the arbitration scheme of the Munitions Act. An arbiter, who was appointed in a wages dispute some time ago, had decided that a bonus was to be paid to a certain class of workers engaged on a particular kind of co-operative work. Admittedly this was not done. Six weeks elapsed, and then the men's trade union made a complaint to the Tribunal. The employers' explanation was that they had entered upon correspondence with the Chief Industrial Commissioner as to the extent of their liability under the award. The bonus was subsequently paid. The heavy penalty attached to the failure of any employer to implement an award, said the President, showed that the Legislature took a serious view of such an offence, and the reason was obvious. The Arbitration Scheme of the Munitions Act was the counterpart of the emphatic prohibition during the war of strikes. An employer, therefore, who failed to implement an award took upon himself a serious responsibility.

NORTH-EAST COAST DISTRICT.

(From Our Own Correspondent.)

Neutral Tonnage after the War.—A quarter of a century ago foreign shipowners placed orders for new tonnage on the Tyne very freely, but in the interval they have learned to build more extensively in their own lands, and if there had been no war we would not have heard of any pressing desire to have more vessels constructed in this country. But the whole position has changed in consequence of the effects of the great conflict. The neutral shipowners have amassed huge surpluses out of the war, and now they are out to secure ahead all the tonnage they can possibly get. At home they are building as fast as they can, and it is now asserted that large contracts have been placed with British shipbuilders at £25 per ton for delivery after the war. This has caused deep concern among the members of the North of England Steamship Owners' Association, and at a meeting held in Newcastle, when the matter was fully discussed, a resolution was adopted urging that this development constitutes a "serious menace to the maritime supremacy of Britain."

Everybody is now aware that the depletion of British mercantile vessels in consequence of the exigencies of war has been so considerable that when peace comes the whole shipbuilding capacity of the nation will be needed for at least a few years to restore our fleet of cargo and passenger vessels to what it was previous to August, 1914, and if British shipowners are to be crowded out of the shipyards by neutrals it will be a very disastrous thing for our mercantile strength on the seas. The foreigner will have no lack of capital, and he will bid high for the available building berths, but it is unthinkable that the Government would allow the British shipowners to be placed at a disadvantage after all that the mercantile marine has done for the Empire since the war began. Nothing, however, must be left to chance, and doubtless the agitation started at Newcastle will spread to every shipping centre in the United Kingdom, and ultimately induce the Government "to take such steps as will enable the British owners to rehabilitate the British mercantile marine."

Government Shipping Policy.—The outstanding speech at the shipowners' meeting in Newcastle was that of Mr. W. J. Noble, chairman of the Cairn Line. A strong point in his remarks was that the Government is being misled by its economic advisers, who, he asserted, had withheld material facts, and thereby misled the public, and that unless the Government adhered to its policy in regard to shipping interests it would inevitably destroy the maritime supremacy of this country. The question, as any one may readily appreciate, is one of very real and vital concern to the future development of the British Empire. We are looking forward to the rapid expansion of our colonies immediately after the war is over, and a commercial and industrial knitting together of the Empire as it has never been before; but how can we realise these hopes if we have an inadequate merchant fleet, and an appreciable quantity of British merchandise has to be carried in foreign bottoms? There needs to be a national hustle on this all-important question.

Leaving Certificates.—Very sensible are the remarks of the general secretary (Mr. F. W. Dawtry) of the Steam Engine Makers' Society, in his current monthly report on the abolition of the leaving certificate. This union has a good many members in the marine engine shops, and he points out that while he welcomes the greater freedom given to the workman in placing his labour to the best advantage, it had to be remembered that never was the country, which included all within its border, in such personal and corporate peril as it was now, a fact on which there need be no two opinions, and the immediate outlook was grave, though promising. Mr. Dawtry feels sure common sense and judgment, to say nothing of self-preservation, will prevent chaos and dislocation in essential industries; and advises no member to leave his employment unless he has likely employment immediately open to him. To emphasise the necessity of every man sticking to his work, Mr. Dawtry quotes figures of the losses in ships by enemy submarine in the past seven months, and these ought to impress even the most unthinking among the workmen at this time.

Proposed New Workers' Industrial Union.—A private conference held in Newcastle, largely by strangers, as the local trade unionists held aloof from the gathering, to form an Engineering and Shipbuilding Workers' Industrial Union did not lead to anything promising for the new movement. There were about a hundred and fifty delegates present from different parts of the

country, and one of the aims of the gathering was to give the Executives of the existing unions in the engineering and shipbuilding industries "a final chance to amalgamate." The deliberations lasted over two days, and disappointment was expressed at the apathy of some districts, that of Newcastle included, where the shop stewards had decided against attending the conference. A considerable section of the meeting could not understand why it should be necessary to create a new union and to abolish those now long established, and after all the talk the only thing that happened was a decision to take a vote of the members, of the amalgamation movement, on a question of fusion with shop stewards and workers' committees.

Training for Mercantile Marine.—For a great many years the Marine School at South Shields has done a splendid work in training youths for the mercantile marine, and a suggestion is now being considered that the local Education Committee should co-operate with the governors of the school in respect of the maintenance of the evening classes, which have just commenced for another session. There are 579 applications for the Marine School evening classes in engineering, and these classes are carried on at the cost of the endowments. So popular have these classes become that the school is congested, and therefore the governors have sought the co-operation of the Education Committee with a view to the latter taking over the junior classes, while the senior classes will be retained by the Marine School. By this educational work in the evenings the Marine School has in the past, it is estimated, saved the ratepayers of South Shields thousands of pounds.

Demand for Merchant Tonnage. There are interesting developments going on at several North East Coast shipyards in preparation for the big demand for merchant tonnage that is certain to be experienced when the war is over. The extensions at the yard of Robert Thompson and Sons, Ltd., Southwick, Sunderland, are nearing completion. An area of six acres has been taken over and three berths have been enlarged to take vessels up to 500 ft. in length. There is also space available for a berth for smaller ships, and this will be utilised as necessity arises. New sheds are being erected in close proximity to the berths, in order to facilitate construction. When the improvements now in progress are completed there will be employment for extra workmen to the extent of between 300 and 400. In addition to the important project which Lord Furness has initiated on the Tees for a shipyard and dry docks, it is now reported that Ropner & Sons, of Stockton, are negotiating for over 3,000 square yards of additional land for extensions to their shipyard.

MERSEY DISTRICT.

(From Our Own Correspondent.)

Carters' Wages.—As the outcome of a meeting of Merseyside carters mainly employed in dockside work, held on Sunday, a claim was sent to the employers on Monday this week for a further advance of 13s. per week on present wages, and double overtime, the reason assigned being the higher cost of living since the last advance was made.

Resumption of Service.—Sailings of the cargo boats of the City of Dublin Steam Packet Company which were suspended last week to Birkenhead and Manchester have now been resumed, the Government having requisitioned all the company's boats. There is no official explanation why the service was stopped, but it is commonly understood to be the result of a refusal by the Government to undertake some of the sailing risks of the company's trade.

Honours for White Star Line Men.—Lieutenant J. G. Wood, R.N.R., who was a cadet on the White Star Line training ship *Mersey* prior to the outbreak of war, has just been awarded the D.S.C. for meritorious services, and the D.C.M. has been conferred on J. A. Edwards, formerly a steward on a White Star steamer, with promotion to rank of serjeant, for gallant conduct in the field. Both afloat and ashore White Star men have distinguished themselves during hostilities, the honours gained including one C.B., one C.M.G., ten D.S.O. (one with bar), eight D.S.C., three M.C., two M.M., one D.C.M., one M.S.M., and one Russian Order.

Training Boys for Sea.—Admiral Sir Robert Lowry, K.C.B., R.M., Chairman of the Admiralty Committee on the Mercantile Marine, has, during the past week, made an inspection of the Lancashire and National Sea Training Homes at Liscard, established some fifteen years ago by Liverpool shipowners, in order to be thoroughly conversant with the facilities provided at these homes for the training and education of boys for a sea career. The Admiralty Committee, it should be observed, has been appointed to prepare for the consideration of the Government a scheme for the more thorough and comprehensive system of training boys for the mercantile marine.

A Munificent Shipowner. The funeral took place on Monday this week, at Thornton Hough, Cheshire, of Mr. Joseph Hoult, the well known Liverpool shipowner, who was found dead in bed at his Penrith residence on Thursday morning last. It was only in August last that the deceased shipowner celebrated his 70th birthday by distributing the large sum of £70,000—£1,000 for each year of his life—to Merseyside charities, and of this sum £30,000 was allocated for the benefit of mercantile marine engineers and firemen. After a period of apprenticeship and as a clerk with the Liverpool firm of Strong, Reid & Co., he, at the age of 21, started business on his own account as a ship and insurance broker, and nine years later as a shipowner. His first important move was in 1877 when he had a steamer built to his own designs by a Whitehaven shipbuilder, who, it is said, refused all responsibility for the seaworthiness of the craft. The boat, however, carried 1,600 tons of cargo over a bar to cross which other steamers had to lighten to not exceeding 700 tons. This steamer was a great success, and was the pioneer of a considerable fleet of flat bottomed, light-draught, big carrying vessels. Mr. Hoult also had the honour of dispatching the first steamer from Liverpool to Natal, and he also established a line of steamers which ran between the West Indies and the Mersey. Later, his ships were engaged in general trading. He represented Wirral Division in Parliament for six years, during which period he did useful work in serving on the Manning Committee of the House of Commons. He was a generous giver to all philanthropic movements in his native city, and the Merseyside generally.

SOUTH WALES DISTRICT.

(From Our Own Correspondent.)

Cardiff Shipowner's Munificence.—Lord Aberdare announced at a meeting of the Governors of the University College of South Wales and Monmouthshire that Sir Wm. James Tatem, Bart., had made the princely gift of £25,000 for the purpose of providing a chemical laboratory to be called the Tatem Chemical Laboratory. Principal Griffiths said that owing to Sir W. J. Tatem's generosity they would have a chemical laboratory that would compare favourably with any British University. The following prominent members of Cardiff shipping and coal businesses have contributed to the fund for providing laboratories for the science department: Morgan, Wakley & Co., £2,100; Mr. Dan Radcliffe, Mr. Herbert Cory, M.P., and Mr. J. W. Beynon, 1,000 guineas each.

Training Boys for Mercantile Marine.—The question of training boys for the merchant service is under consideration by the Newport Education Committee. It is pointed out by Dr. J. Lloyd Davies, the chairman, and Dr. Holland, principal of the Technical Institute, that it will be futile to go on building ships unless there are sufficient trained persons to man them; also, they state, British ships should be manned by British boys. They propose that after the elementary school period, boys of good character should attend the Technical Institute to obtain special and scientific instruction in seamanship, and that a vessel should be placed at the disposal of the committee, on which the pupils should have at least a three months' course of practical seamanship, and that the courses be extended for three years in certain cases.

Scheme for Pooling Labour.—The Cardiff No. 1 Branch of the National Amalgamated Labourers' Union has passed the following resolution on the pooling of labour scheme: "That the members of the Cardiff No. 1 Branch regret they cannot accept this or any other scheme, seeing that the members of the Union, dry dock workers for many years, are often discharged, and that men of all classes and professions, of military age, are hiding in this occupation in order to evade joining the forces of the Crown, and are kept in constant employment; we are of opinion that this class of man can be substituted by discharged soldiers and sailors of His Majesty's forces, if need be."

The labour pooling scheme, which is not yet in operation, is not for the purpose of combing out men, but for transferring men from yard to yard or from port to port as required.

Shipment of Coal to France.—Great interest was taken in a meeting of exporters of coal to France and Italy, held at the Exchange, Cardiff. The meeting was convened consequent upon the

rumours that Furness, Withy & Co. were in negotiation for the supply of 1,000,000 tons a month of coal to France, which would absorb practically all the exports to that country. An official report of the meeting which was issued says that it was decided that a special meeting of exporters to Italy should be called to consider certain suggestions as to pooling. The new arrangements of the French Government for the grouping of coal requirements were explained and considered. The meeting then proceeded to discuss the report that a certain firm in special touch with the Government had offered to ship 1,000,000 tons of coal per month to France. The report as it first appeared in the Press had been contradicted by the chairman of the firm in question. A speaker said that the report as it reached him was that the deliveries were to commence after the war. It was said that any of our larger firms could ship 1,000,000 tons per month if only they could get the necessary tonnage. Strong objection was made against the creation of any monopoly, more especially if the monopolist had enjoyed special shipping facilities from His Majesty's Government. It was stated that it was our duty to see that the young men from the Exchange now fighting in France should not return to find their livelihood acquired in their absence by new firms. It was finally decided to call a special general meeting of the Chamber to further consider the matter.

BELFAST DISTRICT.

(From Our Own Correspondent.)

Increased Shipping Rates.—Further increases in the shipping rates between England and Ireland have led to remonstrances to the Board of Trade, which has explained the situation in a letter to Mr. W. Field, M.P., in which it is stated that the Order increasing the rates was made under the Defence of the Realm Regulations on the urgent representations of the Shipping Controller in the interests of the efficiency of the cross-channel services. There are no maximum charges in the case of the independent steamship companies, but unless certain railway-owned services were permitted to raise their through rates the independent shipping companies could not do so, and it was possible that they would not be able to continue their services at the rates hitherto in operation.

New Tonnage. The amount of work in hand in the Logan yards shows no sign of falling off. It is very varied and interesting, and, did D.O.R.A. permit, a great deal could be written of new tonnage present and prospective. Some of the big companies which build almost exclusively in Belfast have been hard hit by the ravages of the submarines, which have sent many locally-built liners to the bottom, including one large steamer during the past few weeks. These vessels will all have to be replaced in time, so that the prospect in the way of renewing losses, not to speak of expansion after the war, is very bright, provided labour maintains a reasonable attitude and does not drive business abroad by insisting on the continuance in peace times of the present high wages.

The Distribution of Tonnage.—The recent requisitioning of ships in the Dublin trade, which has been the subject of considerable discussion at the Port and Docks Board and which has interfered considerably with the transit of cattle, has been followed by the requisitioning of two steamers in the Londonderry service. The local Harbour Board discussed the matter and the position of the port at their monthly meeting on October 12, and it was stated that a communication had been sent to the director of cross-channel transportation in the hope that he might be able to afford some relief in the public interest in the direction of a better distribution of available tonnage at the various Irish ports than appeared to exist at present. Mr. Burgess, the Irish Director of Shipping, is a practical man, with the trade at his finger ends, and so far he has been able to work the services with comparatively little dislocation. There is a general feeling that he will do the best for all concerned in his delicate and difficult task.

THE FREIGHT MARKETS.

(From Our Own Correspondents.)

London.—In all sections of the freight markets on the Baltic Exchange rates continue very firm with an upward tendency. This tendency is especially noticeable in the Eastern and United States sections, where actual advances have taken place. The River Plate market is without animation and quotations are nominally 145s. from the upper ports and 5s. less for the down-river loading. From the range ports of the North American Atlantic seaboard, tonnage is in brisk demand at advancing figures on net form of charter. To the United Kingdom 230s. is obtainable, and to the French Bay ports 260s., while to West Italy 360s. would be paid. For Coal loading an additional 30s. would be conceded. To the United Kingdom from the Northern Range ports heavy grain would command 30s., to France 32s. 6d., and to the Mediterranean 35s. Oats to this country would pay 25s. Coal charterers from Virginia are seeking carrying space for which they offer 125s. to the Plate, $32 to Rio de Janeiro, and $34 to Santos. Sugar cargoes, Cuba to France, can be worked at 280s. or probably more, while nitrate business is worth 180s. to 185s. to the United Kingdom. The strength of the Eastern section of the market is well maintained. A good deal more tonnage could be absorbed than is obtainable. Karachi indicates 250s. on scale basis to this country, and Bombay the same figure on deadweight, with 400s. to the Mediterranean. On jute basis Calcutta offers 550s. to Santos. Kernels to Marseilles from the Madras Coast command 550s. From the rice ports big figures are still quoted, Burmah to France being worth quite 600s., and Saigon to France probably more than 575s. In the Mediterranean section of the market steady business is being transacted from the ore and phosphate ports. From Huelva to the Mersey 45s. offers, Bilbao to Boulogne 50 frs., Bougie to the Clyde 65s., Tunis to the same destination 70s., Sfax to the East Coast United Kingdom 75s., and Huelva to the East Coast United Kingdom for pyrites 60s. Bay business is indicated by a fixture at 22s. Bordeaux to British Channel.

Glasgow. There was no improvement in the supply of tonnage throughout the week, and consequently there was no increase in the volume of business concluded as compared with recent weeks. Maximum rates ruled for controlled boats, and for neutral destinations the tone was very firm, charterers' requirements being heavy. A steamer was reported fixed, Glasgow to Gibraltar, at 100s. In the homeward market the tonnage was also in very short supply; the tone was firm, but quotations were merely nominal. The fixtures reported were: Northern Range to the United Kingdom, 255s. net, November; Virginia to the River Plate, 76s.; coal, October-November, and a ship chartered Norfolk to Buenos Ayres, about 117s.

Newcastle-upon-Tyne. Business in the local coal tonnage chartering market is only being done on a very small scale at present. Official requirements of fuel have fallen off somewhat, and the large volume of arrivals of requisitioned tonnage, which kept the coal market active to a very considerable extent, has been materially diminished, with the result that the coal trade is now crying out for shipping even more loudly than has been the case in recent weeks. Exceedingly little neutral tonnage is on offer, however, and even the record rates which are being quoted in many directions are unable to attract cargo space. In the business done, Swedish destinations have loomed large, nearly 5,000 tons of shipping having been taken up for Stockholm at from 205 kr. to 207½ kr., whilst two medium-sized vessels have been engaged for Gothenburg, one at 190 kr., and the other at 195 kr. There is still a considerable inquiry for tonnage for Scandinavian destinations. Coastwise, a small steamer has been fixed for London at 20s. 6d. Mediterranean business has been nil during the week, although 220s. continues to offer for Barcelona, and 165s. for Port Said. Bilbao has been arranged for at the new record rate of 160s. for a 3,000-tonner. Gibraltar has been done at the even century of shillings. Very few fixtures for the carriage of coal and coke to French Atlantic ports are reported. Portuguese ports are unavailingly quoted at 90s. to Lisbon and 105s. to Oporto.

Liverpool. There is no change on this market from a week ago, except it be that outward coal business is reduced through ships offering sparingly. Maximum rates are obtainable to limitation ports, and neutral boats could be fixed on very advantageous terms. Time chartering is slow, but rates are firm. A 6,000 ton d.w. boat made 42s. 6d. for one round trip between United States and West Coast South America. Homeward freights are firm and appreciating all round. Easterns bid extreme rates for boats, rice ports indicating 500s. from Saigon or Burmah to France or United Kingdom, and 550s. from Madras Coast to Marseilles. Net charters from North America are firmer, and 260s. could be obtained to French Atlantic from Northern Range, while 240s. is indicated to the United Kingdom, and 360s. to Italy. There is a brisk demand for neutral boats to load grain from America to United Kingdom and Allied countries, Northern Range indicating 35s. to United Kingdom. Canada quotes 600s. for deals to Belfast, and Cuba

quotes 280s. sugar to France. River Plate is unchanged at 145s. up river, and 140s. down river ports.

Cardiff and Swansea.—Quietness remains the dominating feature of the outward coal freight market. A very firm tone continues to prevail, and the demand for vessels was very pressing. There has been practically no tonnage offering for unscheduled destinations despite the very high rates quoted. Although no business was reported for Spain there were many enquiries, and it was stated that merchants were ready to pay 250s. for Barcelona. The following fixtures were reported for France, in each case for neutral vessels: Brest, 45s.; Havre, 45s. 9d.; Caen, 48s.; Cherbourg, 47s. 3d. and 48s. 9d.; and Bordeaux (Newport loading), 69s. On the Swansea market conditions have ruled generally unchanged. A good enquiry has prevailed, but business was limited owing to little tonnage being offered. Rates have exhibited a very strong tone. The only business reported was for France: Brest, 45s.; Caen, twice at 46s. 6d.; Rouen, 47s. 3d.; Trouville, 48s.; and Cherbourg, 48s. 9d., in all cases for neutral steamers.

Hull. There is plenty of enquiry in all sections of the market, but chartering continues to be restricted for lack of tonnage. In the West Station market very little is doing on this account. In the North French trade there continues to be a heavy enquiry at fixed rates and a fair trade is doing both in sail and steam. The Scandinavian and other neutral markets are quiet as the tonnage supply scarcely extends to this business in view of other needs.

COMPANY MEETINGS.

Cardiff Channel Dry Docks & Pontoon Company, Ltd.—The annual meeting was held at Cardiff on October 16. In moving the adoption of the report and accounts, the chairman (Mr. John Cory) said the company were still under Government control, and, of course, the profits were controlled. The net profit was £45,178, which was an increase of £8,234 on the previous year. After providing for preference dividend and final dividend on the ordinary shares of 5 per cent., making 8 per cent. for the year, the carry-forward was £127,310, as against £107,031 in 1916. He referred to the fact that they had several items outstanding in respect of work at Newport and Cardiff, and the result was that these outstanding accounts were held up until repairs were finished. He also drew attention to the item in the balance-sheet, viz., overdraft from bank, which stood at £157,389. That amount, however, had been reduced by £132,000, which was the amount of new capital issued, so that their indebtedness to the bank stood to-day at £25,000, as compared with £157,389 for the year ended March 31 last.

Mr. Henry Radcliffe, in seconding the motion, referred to the fact that the position of shipowners to-day was different from what it was 12 months ago. The Government had stepped in, and consequently there was no scope for enterprise, and there was nothing like the money made by shipowners that people seemed to think.

The motion was carried.

The "Flower" Motor Ship Company, Ltd.—An extraordinary general meeting was held, on October 18, for the purpose of passing the following as an extraordinary resolution:—"That the company be wound up voluntarily, and that Mr. Samuel Samuel, D.L., M.P., of 25, Bishopsgate, in the City of London, be and is hereby appointed liquidator for the purposes of such winding up." The Chairman (Sir Marcus Samuel, Bart.), in moving the resolution, said that before formally moving the resolution he would like to make it clear that the motives which actuated the foundation of this company proved correct. Although they were winding this company up, the good work that it inaugurated was destined to have a most important influence upon the future of shipping throughout the world, because it was established beyond any doubt that the oil engine, the internal-combustion engine, had advantages of the most material kind over the steam engine. As an instance of that, the owners of those ships requisitioned by the Government appealed that a different rate of hire should be paid for them compared with the rate paid for identical ships as steamers. In the result the arbitrators (being men against whom it would have been impossible to take the slightest exception, because they had a perfect knowledge of the question) gave an award that, as compared with 11s. per gross registered ton for steamships, those vessels were to be remunerated at the rate of 12s. 6d. per ton, thus proving that, size for size, the internal-combustion driven ship had established a superiority in the earning power of no less than 15 per cent. over the steamship. That, of course, was not the full measure of the advantages that are gained. They had been so often expatiated upon that one hesitated to reiterate them, but could not lose sight of the fact that if those vessels had been burning oil under the antiquated system (as it now is) under their furnaces they would have consumed at least four times the quantity used in the internal-combustion engines. They were so much indebted to the builders of those ships for the extremely generous way in which they had behaved to the company that he would not like the meeting to have been held without expressing his conviction that they had attained success. Although the company was to cease to exist, it had started and given an example as to the use of the internal-combustion oil engine which must become accentuated after the war, because the supplies of oil throughout the world were turning out to be much beyond the hopes or expectations of any living being. New sources had been discovered, widespread installations were being put up, and the advantages of liquid fuel had been so completely established that it was impossible to think of reverting to coal as the main source of motive power for the propulsion of ships. The shareholders had conducted that important national service without loss to themselves. They would receive back the entire capital they had subscribed. They had received dividends in the meantime, and when the liquidator gave his final account it was hoped that it would be possible to make a distribution beyond the actual capital subscribed. The directors really could not conscientiously advise the continuation of the company, because there was a very large liability on the shares. They were only 3s. 6d. paid up, and many of the shareholders did not like the prospect of a liability of 16s. 6d. per share which might be called up. That was one reason. Then there was another, that if they did continue the business they would have to take—the shareholders would have to take—the entire risks of the construction of new tonnage at very high rates, whilst they could only retain 20 per cent. of any excess profits. That was such an unbusinesslike proposition that the directors did not feel justified in asking the shareholders to take it.

Mr. Frederick Lane, in seconding the resolution, said that in connection with the matter there were circumstances, purely of personality, that had led to this course being pursued, and which had nothing whatever to do with the merits of the business itself.

The resolution was carried.

COMPANY REPORTS AND DIVIDENDS.

Maritima Italiana, Genoa.—The net profit for 1916-17 was £35,900 from which will be paid a dividend of 8 per cent.

Deutsche Seefischhandels A.G.—The accounts for 1916-17 have been accepted, together with the declaration of 20 per cent. dividend.

Societa Veneziana di Navigazione a Vapore, Venedig.—The profit realised during 1916-17 amounted to £204,000, from which 23 per cent. dividend is declared on the share capital of £198,000, The latter is to be raised to £595,000.

Maindy Shipping Company, Ltd.—The directors have declared an interim dividend for the quarter ended September 30, of 10 per cent. per annum, payable November 3, to shareholders registered on the books at October 25.

Lambert Brothers, Ltd.—The directors have decided to recommend, subject to audit, a balance dividend on the ordinary shares of 7 per cent., less income-tax, and a bonus of 12½ per cent., less tax, for the year ended June 30 last.

Stettiner Oderwerke A.G. fur Schiff u. Maschinenbau.—The directors have decided that, after making suitable allowance for depreciation, it will be possible to pay 10 per cent. dividend for 1916-17, compared with 8 per cent. for 1915-16.

Cuxhavener Hochseefischerei A.G.—The 1916-17 accounts have been accepted and a dividend of 14 per cent. declared. Albert Ballin and M. W. Kochen have been re-elected to the superintending council and Dr. Schamer (Cuxhaven) has been elected in place of the late H. P. Newman.

Grosser Kurfurst Heringsfischerei A.G., Emden.—Receipts for 1916-17 amounted to £2,850 (compared with £828 last year). After allowing £1,220 (£3,390) for depreciation, there remains £2,170 profit which is applied to reducing the deficit of £4,490 on last year's accounts. The share capital is £49,000 (unaltered).

Elsflether Heringsfischerei A.G.—The share capital remains unaltered at £49,000. Total receipts during the past year amounted to £18,400 (compared with £12,100 in 1916). After allowing £8,700

(£6,520) for depreciation, there remained a surplus of £6,200 (£2,810) from which 10 per cent. dividend has been declared (compared with 5 per cent. last year).

Parsons Marine Steam Turbine Company, Ltd.—The directors state that owing to the difficult questions which have arisen through the company coming under the Finance Acts, it has not been possible to complete the accounts for the year ended June 30, 1916, nor for the year ended June 30, 1917, but a dividend of 16 per cent., free of income-tax, payable on October 17, is recommended, making 25 per cent. for the year. No further dividend for the year will be declared. The dividend was the same last year.

German High-Sea Fisheries.—The Braker Heringsfischerei A.G. realised a net profit of £6,860 for 1916-17 (compared with £3,110 for 1915-16) and declared 10 per cent. (5 per cent.) dividend. The Geestemunde Hochseefischerei A.G. pays 12 per cent. dividend this year, compared with 5 per cent. last year. The Visurgis A.G. (Bremen) pays 4 per cent. (nil last year) and has increased its capital from £56,200 to £88,000 in order to acquire the motor fleet of the Fischereigesellschaft Brema A.G. J. Wieting A.G. (Bremerhaven) pays 13 per cent. this year, compared with 10 per cent. dividend last year. Emden herring fisheries also show improved results, thus the Emder Heringsfischerei A.G. pays 5 per cent. (nil); the Dollart A.G. shows a surplus of £119, after writing off the loss brought forward from last year; and the Grosser Kurfurst A.G. has reduced its deficit from £3,510 to £1,335.

Hills' Dry Dock & Engineering Company, Ltd.—The report for the year ended June 30 last is now available. The accounts show a profit of £13,186 for the year, and adding the balance of £2,099 brought forward, the sum of £15,286 is available for distribution, which amount the directors have appropriated as follows:—£6,550 to interim dividend of 10 per cent. per annum, paid January 31, £6,550 to payment of a final dividend of 10 per cent. per annum paid August 22, and £2,186 carried forward. The profits and dividends for the last five years were:—

Year ended June	Profits. £	Ordinary dividend. Per cent.
1913	11,752	7½
1914	7,390	5
1915	12,735	5
1916	9,676*	10
1917	13,186†	10

* After providing £16,500 reserve under the Munitions Act.
† After providing for reserve under Munitions Act.

Mountstuart Dry Docks, Ltd.—The report for the year ended June 30 last states that an interim dividend at the rate of 6 per cent. per annum on the preferred ordinary shares and at the rate of 6 per cent. per annum on the deferred ordinary shares was paid in January last, after providing for which, adding the balance brought forward from 1916, and allocating to depreciation the sum of £10,000 and providing for munitions levy and excess profit duty, there remains a balance of £44,830. Out of this balance the directors paid on August 4 last a further dividend of 6 per cent. per annum on the preferred ordinary shares, and 8 per cent. per annum on the deferred ordinary shares, making a total distribution for the year of 6 per cent. on the former and 7 per cent. on the latter shares, leaving £30,828 to be carried forward. The profits and dividends for the last five years compare as follows:—

Year ended June	Profits. £	Dividend on deferred shares. Per cent.
1913	40,070	5
1914	40,050	6
1915	38,768	6
1916	42,692*	7
1917	42,904*	7

* After providing for munitions levy, &c.

Ericsson Shipping Company, Ltd.—The eighth annual report, for the year ended September 30, 1917, shows a credit balance to profit and loss of £21,674, as against £13,403 for 1916, and £8,766 for 1915. Payment is recommended of a dividend, making 10 per cent. for the year, free of income-tax, as against 20 per cent. last year, and 15 per cent. in 1915. The difference in distribution as compared with 1916 and 1915 is due to the fact that, last year, the amount recovered in respect of the loss of the ss. *Monitoria* over and above her book value, was carried to the share capital account to provide for new tonnage contracted for, and shares were issued *pro rata* to the shareholders to the extent of £30,000, making the capital of the company fully paid, viz., £50,000, such new shares ranking for dividend as from October 1, 1916. Thus, the 20 per cent. paid last year was on a capital of £20,000; the 10 per cent. now proposed is on a capital of £50,000. Besides, £8,000 of the balance is to be set aside for excess profits duty reserve, as against £2,500 last year, and nil in 1915. By the loss of the ss. *Monitoria*, the company's fleet was reduced to one vessel—the ss. *Hyltonia*. New vessels are on order, however, and the first of these will, it is expected, be launched next month.

Austriawerft A.G. (Stabilimente Tecnico), Trieste.—From a gross profit of £333,000 (£220,000 last year) there are the following outgoings: business expenses, £113,000 (£99,200 last year); taxes, £50,100 (£39,900); contribution to workmen's insurance, £8,340 (£9,100); depreciation in values, £34,750 (£21,250). After allocating £26,100 (nil last year) to tax reserve and £41,600 (nil) to war loss reserve, there remains £64,000 (£59,200) net profit (including £4,840 (£8,500) brought forward). A dividend of 15 per cent. is again declared and £8,700 carried forward to current account. Work at Trieste was suspended for some time after Italy entered into the war, and was not resumed completely until last year. The company has a greatly increased number of orders in hand and is occupied principally with Admiralty orders both in its two Trieste yards and in its Danube yard (Linz), where the manufacture of Diesel engines forms an important part of the work done. The gross profit has increased 51 per cent. (compared with last year's figure), but the net profit for the year, excluding balance brought forward, has increased only 17 per cent. owing to the allocation of £26,100 for tax reserve and of £41,600 (*i.e.*, more than 70 per cent. of the net profit) to the formation of a reserve against war losses. The gross profit includes revenue from the shares held by the company in the San Rocco yard and in the Sigl locomotive works (12,000 shares), and a dividend of 10 per cent. from shares in the Rumanian Fernic yard. The balance sheet shows: Site and buildings, £270,000 (£285,000 last year); engines, tools, &c., £26,700 (£31,300); floating docks, &c., £2,500 (£5,840); stores, £179,000 (£138,000); cash and bills, £760,000 (£1,032,000); outstanding debts, £620,000 (£494,000); interest in other undertakings, £706,000 (£600,000); deposits, £8,340 (£5,840); running items, £21,300 (£36,300); work in hand, £560,000 (£385,000). Against assets amounting to £3,150,000 (£2,600,000 last year) there are: Share capital, £250,000; reserve, £121,000 (unaltered); reserve for current deliveries, £41,600 (£4,160); tax reserve, £33,400 (£7,100); war loss reserve, £41,600 (nil); miscellaneous liabilities, £755,000 (£610,000); payments on account, £1,070,000 (£503,000); creditor accounts, £720,000 (£950,000 last year). It will be seen that the ordinary reserve fund (apart from the war loss reserve and the reserve for current deliveries) amounts to nearly half of the capital, which is, however, very small compared with the total assets.

COMPANY REGISTRATIONS.

David Adams & Sons, Ltd. (Capital £4,000, in £1 shares. Objects: Ironfounders, engineers, anchorsmiths, patentees, makers of anchors, grapnels, shackles, chains, forgings, castings and ships' tackle, &c. Signatories:—

S. Adams, 35, Highfield Road, Broadheath, Birmingham, blacksmith.
D. B. Adams, Granville House, Beauty Bank, Old Hill, Staffs., anchorsmith.
J. L. Adams, Ravendale, Sydney Road, Cradley Heath, anchorsmith.

The first directors are to be appointed by the subscribers. Secretary, D. B. Adams. Registered office, Nelson Anchor Works, Cradley Road, Cradley Heath. Private company.

Letten Brothers, Ltd.—Capital, £20,000, in £1 shares. Objects: Wholesale and retail fish curers, trawler, smack, and ship owners, &c. Signatories:—

G. S. Letten, Hazelmere, Welholme Avenue, Grimsby, fish merchant.
J. E. Letten, Peashurst, Weelsby Road, Grimsby, fish merchant.

Permanent directors: G. S. Letten (chairman), J. E. Letten, and F. S. Letten. Registered office: Auckland Road, Fish Docks, Grimsby. Private Company.

Furness Shipbuilding Company, Ltd.—Capital, £650,000, in £1 shares. Objects: Builders and repairers of ships, marine engines and boilers, electrical and general engineers, manufacturers of dynamos, tools, fittings, accessories and appliances for ships, vessels and craft of all kinds, shipwrights, forge masters, dredgers, tug and barge owners and builders, dock, wharf, jetty and pier proprietors, &c. Signatories:

Lord Furness, Furness House, Billiter Street, E.C.
F. W. Lewis, Crosby Square, E.C. (3), shipowner.

The first directors are: The Rt. Hon. Lord Furness of Grantley and Walter Furness. Solicitors: Bolan, Middleton & Co., 52, John Street, Sunderland. Private company.

NEWS PARAGRAPHS.

The Australian Route.—The new Australian Trans-continental Railway will, it is estimated, effect a saving of at least four days in the journey between London and Sydney, N.S.W.

Japanese Ships Sold.—Up to a few weeks ago it was estimated that since the war began 32 Japanese vessels, aggregating 133,761 tons gross, were sold abroad, or were contracted to be sold, the value of the tonnage being about £6,100,000. Eight of the vessels were bought by Norwegian, four by French, nine by British, five by United States, five by Spanish, and one by Italian owners.

Greek Merchant Shipping.—Reuter's Agency states that the Greek Legation has been instructed by the Greek Government to notify to all concerned that no sale or transfer of a Greek merchant ship, of whatever description or size, is permitted, either to a Greek or a foreign subject, without the prior express permission and sanction of the Greek Government. Any contravention of this decision will entail the severest material and personal penalties.

Compania Siderugica de Mediterranee, Bilbao.—The Spanish shipowners Sota y Aznar are interested in this concern, which has been founded with a capital of £3,960,000, in order to erect blast furnaces and steel works near Valencia for the utilisation of Spanish ore. Production will be increased gradually to 300,000 tons per annum. Spanish industry in general and shipbuilding in particular will be partly relieved from one of its principal difficulties directly the new works are in operation.

German Shipping Preparations.—An Exchange message from Amsterdam states that an association of Germany shipowners has been formed in Hamburg, at the head of which is Dr. Stabmann, a member of the Reichstag. The aim of the association is to see that Germany has enough tonnage after the war for her raw materials and food, as a shortage of tonnage is already predicted. The association will be under Government control, and a system of tonnage will be arranged in order to secure the best results for the Empire from the available tonnage.

Shipbuilding at Kobe.—A large extension of equipment is projected by the Mitsubishi Dockyard and Engine Works, at Kobe. The company is to build four steamers this year, ranging from 2,000 tons to 6,000 tons, while the construction of other vessels on its own account is also contemplated. To meet the increased demand for building capacity, the management has undertaken the construction of two new docks, and a floating dock of 20,000 tons lifting capacity. It is said that when these projects are completed Mitsubishi yard will be able to build ships aggregating 60,000 tons a year.

Tropical Trading Combine.—Announcement has been made at New Orleans of the merging of the Gulf Coast Fruit and Steamship Company, of Galveston, the Associated Tropical Plantation Company, of Kansas City, the Gulf Coast Plantation Company, of New Orleans, and the Fort Morgan Steamship Company, of Norway, into a large tropical trading concern to be capitalized at about $1,000,000, with headquarters in New Orleans. The offices of the Gulf Coast Steamship Company will be moved from Galveston to New Orleans. A ten-day sailing schedule will be inaugurated between New Orleans and Tampico, Vera Cruz and Puerto Mexico, at which port bananas will be loaded. R. T. Burge, of Los Angeles, will be president of the new concern.

Danish War Losses.—According to the *Forsikrings Kongressen*, the total losses of the Danish merchant fleet during the first three years of the war, amounted to 186 vessels and 191,076 gross tons, distributed as follows: 1914, seven of 9,292 tons (total); 1915, 23 of 23,832 tons; 1916, 56 of 57,566 tons; 1917 (seven months), 100 of 100,386 tons. These figures include only losses covered by war insurance. The number of lost vessels exceeding a value of £27,600 was one in 1914; two in 1915; 17 in 1916; and 34 during the first seven months of 1917. The total value of the 186 lost vessels amounts to nearly £11,000,000, on the basis of present insurance values.

New Steamers for Bergen.—The Shanghai Dock & Engineering Company, Ltd., recently completed the two steamers *Jan* and *Valuta* for Torp & Wiese, of Bergen. These vessels are each 254 ft. 6 in. long, by 37 ft. moulded breadth and 17 ft. moulded depth; classification is to Norske Veritas' highest class, with double bottom for water ballast and all modern appliances for handling cargo. All the machinery, consisting of one large set of triple-expansion surface-condensing engines of about 1,200 i.h.p., with two large multitubular cylindrical boilers and usual auxiliaries, including steam steering gear, steam windlass, steam winches, evaporator, &c., has been made in the company's own workshops.

Dry Dock for Durban. The Union Government is being strongly urged by commercial and shipping interests in South Africa to begin the construction of a dry dock at Durban, for which £500,000 was voted by Parliament some years ago.

South Africa and Argentina.—With a view to the development of trade between the two countries it is said that the Governments of the Union of South Africa and the Argentine will in all likelihood establish a joint line of steamers on the Buenos Ayres and Cape Town route.

Shipbuilding for Neutrals.—Clyde shipbuilders are in receipt of important offers from Norwegian shipping firms to build a large number of cargo vessels, delivery to be as soon as possible after the end of the war. The Norwegians offer a minimum of £30 per ton deadweight, and even higher, but our shipbuilders have patriotically refused to tender.

Sale of Damaged Liner.—It is reported that the *Zambezia* has been sold as she lies in Delagoa Bay for £1,640. This vessel, which is of 1,281 tons, was one of the fleet of the Empreza Naçional de Navegaçao, and was for many years one of the connecting links between Delagoa Bay and all the Portuguese ports to the north. She recently took fire at Lourenco Marques as the result of an explosion, and, having a large cargo of petrol on board, was taken right across the river and sunk, the after part being burned away.

Tonnage Problems.—In the House of Commons on Monday, Sir L. C. Money, the Secretary to the Ministry of Shipping, strongly denied that ships from Canada and the United States were permitted to cross the Atlantic otherwise than fully laden in essential supplies. If in some cases they had spaces unfilled, it was because they were laden down to their marks with heavy cargo. It was also stated in the House by the representative of the Board of Trade, that negotiations were at present proceeding in regard to future employment for the use of the Allies of ex-enemy vessels interned in China, but no decision had yet been reached.

Spain's Shipping Control.—A Reuter message from Madrid states that a Committee of Marine Transport has been established under the chairmanship of a Director-General of Industry and Commerce to control 270,000 tons of shipping which shipowners had placed at the disposal of the Government. All the members of the Spanish merchant marine have also offered their services to the Government. The latter will authorise ships to cross the danger zones, and with regard to those in the greatest danger it will issue instructions and assume responsibility for them. It would reserve to itself the right to increase the tonnage.

Traffic with Ireland.—Some complaints have recently been made with regard to congestion in the transport of live stock from Ireland. Dealing with this subject in the House of Commons, Mr. Duke, the Chief Secretary, stated on Monday, that Mr. Burgess, the Director of Transportation for Cross-Channel Traffic, acting in concert with the Controller of Shipping, had adequate powers to deal with congestion arising on the sea routes between Ireland and Great Britain, by securing the use of all available tonnage. Congestion recently occurred in the carriage of live stock from Dublin, and steps were taken to deal with the matter which he hoped would be effected. He understood that vessels which were not being employed were requisitioned in order to minimise inconvenience.

American Steamers for France.—A Reuter message from Washington states that the Shipping Board has ordered to be turned over to the French Government 20 steel cargo steamers, ranging from 3,500 to 6,000 tons gross, now being built, including some for which British and French firms have contracted. The first 10 will be loaded in 30 days. It is further announced that the delivery of these vessels will not delay the plans already drafted for the transport of the United States troops. The Shipping Board, as an independent transaction, has arranged for taking over the French steel sailing ships, aggregating 400,000 tons, which are now operating in the South American trade, the exchange being made on the basis of one steamer for two or three sailing vessels. The latter will be employed in the nitrate and manganese trade between South America and the United States.

Shipyard Wages. Application has been made by the National Union of Labour on behalf of the members at the North-east Coast shipyards for a wages advance of 10s. per week on time rates for adults, with a minimum of £2 10s. a week, and 5s. per week for youths employed as time workers.

Dutch Steel Supply.—A company, supported by the Rotterdam Lloyd, the Nederlandsche Maatschappij and the Rotterdamsche Bankvereeniging has been formed at the Hague, with a share capital of £2,083,000, for the purpose of erecting and operating blast furnaces and steel works at the Hook.

International Merchant Fleet.—According to an exchange message from Rome, the *Agenzia Volta* says that the Entente Powers have agreed to constitute a large international fleet of merchantmen, consisting of enemy and requisitioned ships, to be distributed among the countries most in need of them. The distribution is to be effected by a central board, with branches in the various Allied countries.

Shipping Values in Japan.—According to the *Japan Chronicle*, a small steamer of 900 tons, built 28 years ago, has recently been sold for £50,500, or £56 per ton. The value of ships is increasing on account of the continued rise in chartering rates. A steamer was chartered for a year for the North American service at the record rate of £4, but this record was quickly broken by the chartering of a ship of 8,800 tons at £4 7s.

New Steamship Service.—The Panama Railroad Steamship Line have established a new steamship service between the United States and the Republic of Panama, with St. Marc, Hayti, as a port of call. When the service is fully organised, sailings will be weekly in each direction, while the average duration of the trip between St. Marc and New York will be four days. St. Marc is four hours' journey from Port-au-Prince by railway, and arrangements have been made for the through transit of goods to Port-au-Prince by rail, and also to other ports of the Republic by the auxiliary schooners of the Haytian Government coastguard service. It is anticipated that a general reduction in freight rates will result from the establishment of this line.

The Destruction of a Convoy.—Sir Eric Geddes, the First Lord of the Admiralty, announced in the House of Commons that a court-martial into the loss of the two destroyers *Strongbow* and *Mary Rose* and the circumstances attending the attack on the convoy would be ordered by the Commander-in-chief of the Grand Fleet immediately the survivors were fit to attend. A naval enquiry would also deal with the general question of convoy which had continuously engaged the attention of the Board and was now being reviewed in consequence of the recent occurrence. Viewing the incident in its right perspective Sir Eric said it must be realised that occasional isolated raids by fast surface craft were incidents in war which could not be foreseen and invariably prevented.

A Fresh Boom in Norway. There appears to be a marked revival in Norwegian shipping speculation. According to *N.H. og S.T.*, new shipping companies were founded as follows :—

In May...	...	...	5 companies with	£998,000	maximum capital.
,, June	...	...	11 ,,	,, £898,000	,, ,,
,, July	...	...	9 ,,	,, £372,000	,, ,,
,, August	...	...	10 ,,	,, £745,000	,, ,,
1st-8th September ...			8 ,,	,, £1,460,000	,, ,,

Of these 43 companies, with a maximum capital of £4,460,000, four are sailing shipowners, 12 are motor shipowners (including six owning motor ships between 250 and 750 tons) and five are concrete shipowners. The price of vessels concerned in these foundations is very high, and frequently exceeds 1,000 kr.(£55) per ton deadweight capacity. A 4,300-ton steamship has been bought for £263,000 and one of 3,300 tons for £197,000, whilst £41,500 each has been paid for two 1,000-ton steamships of wooden construction.

Danish Shipping Profits.—The result of the last financial year of the Danish Steamer Company "Orient" illustrates the larger earnings of tonnage at the present time. The surplus amounted to 15,531,970 kronen, of which 4,000,000 kronen are written off. The shareholders receive a dividend of 65 per cent., and the reserve for extra taxation and carried forward amounts to 4,652,000 kronen. The "Orient" Steamer Company was formed in September, 1915, and the first balance sheet, for rather more than nine months, up to June 30, 1916, showed net profits of 6,193,521 kronen, on which the shareholders received a dividend of 25 per cent., or 2,500,000 kronen. The company had originally 10 steamers, taken over at a sum of 13,305,292 kronen, of which one was sold last year, when the amount written off was 1,998,317 kronen. 985,000 kronen being reserved for taxation and 337,855 kronen carried forward.

Jordabergs Reederei A.G., Hamburg.—This company has been founded with a capital of £49,000, and with the object of engaging in shipowning and trading business in general. The Board consists of Alwin H. Durr, Hamburg (Director), Wm. C. F. Grunhage, Gustav E. E. Stahr, Fr. Fleck, and E. J. A. K. Brockelmann (Rostock).

Rotterdam Dividends. The *Nieuwe Rotterdamsche Courant* presents the following instructive table of dividends :—

Dividend for	1916.	1915.	1914	1913.	1912.	1911.
	%	%	%	%	%	%
Holland Amerika Lijn	55	50	17	15	15	12
Rotterdamsche Lloyd	15	10	7½	10	10	8
W. H. Muller & Co.		20	8	8	8	6
v. Nievelt Goudriaan & Co.	100	100	16	26	20	10
Sollevad. v.d. Meer & v. Haltum ...	100	100	10	20	20	10
Triton	100	40	15	20	15	7
Holland Gulf	40	10		8	6	2½
Zeevaart	75	50	10	7	—	—
De Maas...	100	75	15	10	10	4
Nederlandsche Lloyd		25	9	9	9	6
Houtvaart	50	100	7	—	—	—
Erhardt & Dekkers	60	60	—		—	—

Concrete Ships in Denmark.—There are at present three yards in Denmark for the construction of concrete vessels. One of these in Masnedsund, specially founded in 1916 for the construction of concrete vessels, has so far been unable to start working owing to shortage of iron for frameworks and of materials for concrete. New firms fare worse than older ones in the all-prevailing shortage of materials. Two other concrete shipyards have been opened in connection with existing cement works. At the one in Nastved the first concrete vessel of all-Danish construction was launched on August 14, this being a 22-ton prahm, to be used for stone carrying in the Prasto Fjord. The yard has now commenced work on two concrete motor ships, each of 115 tons d.w. capacity, and has orders booked for several barges, etc. The construction of small concrete motor ships occupies about two months, most of the time being taken up by assembling the iron frame and the wooden forms. Running-in concrete and allowing it to harden occupies only about 36 hours. The third concrete shipyard has been opened at Kastrup by Karl Schoitz, and launched its first vessel on August 15, viz., a lighter of 100 tons d.w. capacity and 64 ft. in length.

Japan's Mercantile Marine.—The compilations of the Department of Communications, published in *The Official Gazette*, gives the present number of Japanese ships and their tonnage as it stood at the end of July last :—

Tonnage.	No. of ships	Total tons.	Regis tered.
20-100	1,039	45,662	21,592
100-300	342	58,400	29,675
300-500	104	41,180	23,178
500-1,000	177	127,511	76,558
1,000-2,000	133	197,841	119,459
2,000-3,000	129	315,898	199,003
3,000-4,000	83	279,367	177,178
4,000-5,000	32	142,858	95,615
5,000-6,000	31	176,203	107,367
6,000-7,000	17	110,331	68,582
7,000-8,000	11	83,118	51,553
9,000 and above ...	6	57,052	36,587
Total	2,110	1,707,325	1,045,243
Total of 1,000 and above	458	1,434,572	895,940
Sailing Ships.			
20-100	8,051	380,347	323,216
100-300	1,743	235,952	203,167
300-500	12	4,203	2,914
500-1,000	1	752	550
2,000	1	2,403	1,383
Total	9,808	623,657	531,230
Ships Registered in Kobe.			
20-300	541		137,329
300-400	345		118,071
400-500	155		68,577
500-1,000	42		26,142
Over 1,000	1		1,437
Total	1,084		351,557

"SHIPBUILDING AND SHIPPING RECORD" TABLE OF SHIP SALES.

Name and Type.	Tonnage.	Dimensions. Draught in ( ).	Sold by, to	Builders, hull and year.	Machinery and builders.	Remarks.
Adeline Smith, ss. (single dk.)	2,168 gr. 1,248 net	288¾′ × 44½′ × 19′	Inter-Ocean Transportation Co., San Francisco, to buyers not stated	Newport News S.B. & D.D. Co., Newport News (1912)	22, 37, 60 × 42 (Newport News S.B. & D.D. Co.)	Price about £100,000.
Dungeness, ss. (single dk.)	2,748 gr. 1,747 net	331′ × 47½′ × 20′ (19′ 11″)	Fargrove Steam Nav. Co., London, to Letricheux Line, Ltd., Swansea	Richardson, Duck & Co., Stockton (1904)	23, 38, 62½ × 42 (Blair & Co., Stockton)	—
Koldobika, ss. (well dk.)(ex *Emerald*, ex *Esmeralda*) (re - named **Iturribide**)	582 gr. 314 net	189′ × 26′ × 14½′	Cia. del Vapor Kataliñ, Bilbao, to the Iturri S.S. Co., Bilbao	Gourlay Bros. & Co., Dundee (1877)	22, 38 × 30 (Gourlay Bros. & Co.)	Price about 1,175,000 pesetas.
Ocean, ss. .. (ex *Kavios*)	2,872 gr. 2,018 net	312½′ × 40′ × 29½′	Hvalfangerselskabet Ocean, Aktie, Larvik, to O. Sorensen, Christiania	J. L. Thompson & Sons, Sunderland (1882)	21, 35, 58 × 45 (Gourlay Bros. & Co., Dundee)	Price about 3,350,000 kr.
Rocha, ss. (well dk.) (ex Albertina) (re - named **Iturrigorri**)	688 gr. 419 net	185′ × 30¼′ × 13′	Government of Uruguay, to the Iturri S.S. Co., Bilbao	D. Baxter & Co., Sunderland (1882)	14½, 20½, 40 × 33 (Douglas & Grant, Kirkcaldy)	Price about 1,325,000 pesetas.
Somerset, ss. ..	3,648 gr. 2,300 net	309′ × 46¼′ × 19½′	Merchants' & Miners' Transportation Co., Baltimore, to Ocean S.S. Co., Savannah	New York S.B. Co., Camden, N.J. (1911)	28, 45, 75 × 48 (New York S.B. Co.)	Price about £600,000.
Suwannee, ss.	3,648 gr. 2,300 net	309′ × 46¼′ × 19½′	Merchants' & Miners' Transportation Co., Baltimore, to Ocean S.S. Co., Savannah	New York S.B. Co., Camden, N.J. (1911)	28, 45, 75 × 48 (New York S.B. Co.)	
Thessalia, ss. .. (single dk.)	3,691 gr. 2,341 net	348½′ × 50′ × 23½′ (21′ 6″)	International Line S.S. Co., Whitby, to B. J. Sutherland & Co., Newcastle-on-Tyne	Tyne I.S.B. Co., Newcastle (1912)	24, 40, 66 × 45 (J. Dickinson & Sons, Sunderland)	
Florentia, ss. (single dk.)	3,688 gr. 2,338 net	348½′ × 50′ × 23½′ (21′ 6″)	International Line S.S. Co., Whitby, to B. J Sutherland & Co., Newcastle-on-Tyne	Tyne I.S.B. Co., Newcastle (1912)	24, 40, 66 × 45 (J. Dickinson & Sons, Sunderland)	
Etolia, ss. (single dk.)	3,733 gr. 2,371 net	348½′ × 50′ × 23½′ (21′ 5″)	International Line S.S. Co., Whitby, to B. J. Sutherland & Co., Newcastle-on-Tyne	Tyne I.S.B. Co., Newcastle (1911)	24, 40, 66 × 45 (J. Dickinson & Sons, Sunderland)	The total d.w. of these steamers is about 39,000 tons. Price £440,000, or a little over £11 per ton d.w.
Leucadia, ss. (single dk.)	3,748 gr. 2,376 net	348½′ × 50′ × 23½′ (21′ 5″)	International Line S.S. Co., Whitby, to B. J. Sutherland & Co., Newcastle-on-Tyne	Tyne I.S.B. Co., Newcastle (1910)	24, 40, 66 × 45 (J. Dickinson & Sons, Sunderland)	
Corinthia, ss. (single dk.)	3,625 gr. 2,359 net	342′ × 49½′ × 25′	International Line S.S. Co., Whitby, to B. J. Sutherland & Co., Newcastle-on-Tyne	J. L. Thompson & Sons, Sunderland (1901)	24½, 40, 66 × 45 (J. Dickinson & Sons, Sunderland)	
Pretoria, ss. (single dk.)	3,700 gr. 2,409 net	381½′ × 45¾′ × 25½′ (23′ 3″)	International Line S.S. Co., Whitby, to B. J. Sutherland & Co., Newcastle-on-Tyne	J. L Thompson & Sons, Sunderland (1900)	24, 40½, 68 × 45 (G. Clark, Ltd., Sunderland)	

Seefahrt Dampfschiffsreederei, Bremen.—An extraordinary general meeting is called for October 10, to consider a proposal to raise the share capital by £49,000 to £73,500.

Nuscke & Co., Schiffswerfte, Kesselschmilde u. Maschinenbau A.G., Stettin.—The agenda for the forthcoming general meeting includes a proposal to increase the share capital by £49,000. The new shares would participate fully in this year's dividend.

Loss of H.M.S. "Orama."—The Admiralty announces that this vessel, one of the largest and fastest of the Orient liners, was torpedoed and sunk on October 19. She was a triple-screw vessel of 12,927 tons, built by John Brown & Co., Ltd., Glasgow, in 1911.

Senta Steamship Company.—This Danish company was founded in 1916 with a share capital of £315,000, which has now been reduced to £31,500 by a 90 per cent. repayment to shareholders. The company has lost the last of its own vessels and has sold its interest in Norwegian vessels owing to the high risks.

Steamers building at Gothenburg.—An Exchange message from Copenhagen states that the Scandinavian Credit Company invites subscriptions to the Graedgesberg Oxeloesuno Company's 5½ per cent. bond loan of 40 million kroner. The money is intended to be used for the payment of 18 ore steamers, of a total tonnage of 115,000. The steamers are now in course of building at Gothenburg.

Shipbuilding Enterprise in Japan.—A shipbuilding yard, to be known as the Asahi Zosen-jo, will shortly be established on the bank of the Kizu River, near Osaka, under the auspices of Masuzo Masuda and Tomitaro Hara, of Yokohama, and several citizens of Osaka. The new yard will first undertake the construction of vessels of from 3,000 to 5,000 tons, and it is expected that by the end of February two steamers, one of 3,000 tons and the other 5,000 tons, will be launched.

Norwegian Shipping Deal.—Mr. H. T. Realfsen, of Skien, has sold to a syndicate at Christianssand and Stavanger the majority of shares in the four sailing vessels *Edon*, *Edel*, *Shakespeare*, and *Eden*, which have a total deadweight capacity of 7,100 tons.

Consolidation of U.S. Shipyards.—A Reuter message from New York states that various shipbuilding yards controlled by the Bethlehem Steel Company are to be consolidated, under the name of the Bethlehem Shipbuilding Corporation, in order to expedite work on the increasing volume of Government shipbuilding demands.

New Dutch Owners.—Quite a number of new shipping firms have been established in Holland during the past two or three months. The largest of these concerns is the Mij. Kustvaart, Rotterdam (capital, £166,666), which will be occupied in North Sea shipping. The Stoomvaart Mij. Delobe (Rotterdam) has been founded with a capital of £8,333, and Hammersteins Reedereibedryf (Rotterdam), with a capital of £41,666. The Nederlandsche Stoomvaart Mij. Bestevaer (founded during the war) has increased its capital from £21,666 to £166,666.

FORTHCOMING EVENTS.

Institution of Electrical Engineers.—Thursday, November 8, Opening Meeting of the Session, at the Institution of Civil Engineers, Great George Street, Westminster, London, S.W., at 6 p.m. Address by the President, Mr. C. H. Wordingham, and presentation of premiums.

SHIPPING AND OTHER MEETINGS.

October 26 (*Friday*).—Mountstuart Dry Docks Co., Ltd. (General Cardiff, at 12 noon.

SHIPPING SHARE MARKET.

The stock and share markets have been quiet, but prices are well maintained, and the balance of the week's business shows an improvement in favour of holders. There have been a number of dealings in Argentine Steam Navigation ordinary shares which reached over 18s. on the announcement to which we referred at length last week that allied shipping interests have secured control of the company. There is no truth in the report that these interests are still purchasing the shares in order to take the entire share ownership out of the public hands. Investors who are purchasing the shares are apparently doing so in the belief that the new conditions will increase the profits to an extent to allow of the declaration again of dividends on the ordinary capital. There has been a revival of interest in Indo-China Navigation Deferred shares which have advanced from 20⅜ to 25. It will be recalled that in 1915 the company removed its domicile from England to Hong Kong, which puts the undertaking outside the scope of the excess profits duty, or at least that is the supposition upon which purchasers of the shares are proceeding. During the past two years the profits have trebled, and the return on the Deferred Ordinary shares for the year ended June last was 50 per cent. compared with nil for many years prior to 1913. As the shares are only of £5 face value the present market premium is 400 per cent. Investors who purchase at this big figure should exercise caution unless in possession of information that justifies an expectation of continued high dividends. Prince Lines and Furness Withys are among other shares which have improved in price. The reports of Manchester Liners and the W. and C. T. Jones Steamship Companies, both showing a falling off in profits, have not affected the market in the shares. The Manchester Liners' dividend is maintained at 25 per cent., and the W. & C. T. Jones Steamship dividend is only reduced 5 per cent. to 20 per cent. Other dividends are: City of Dublin Steam Packet, 5½ per cent. per annum, for the half-year on the Ordinary; African Steamship Ordinary, 10 per cent. per annum for the half-year; Maindy Shipping Ordinary, 10 per cent. per annum for the quarter. Dealings in the shipbuilding section continue on a steady scale, especially in the provincial markets, whence a keen demand is exhibited for small lots.

SHIPPING, SHIPBUILDING, ENGINEERING AND MARINE INSURANCE SHARE LIST.

SHIPPING.

Name.	Share and paid.	Extreme quotations, 1916.	Last ann. div. % or per share.	Yield. %	Last Quotation	Rise or Fall.
	£					
African S.S.	20	33—23½	10	6¾	29	
Allan Line ... ... Deb.	100	—	4	4⅜	92	
Anchor Line ... Cum. pref.	10	9⅞—9½	5⅜	5⅝	9½	+ ¼
Do. ... ... Deb.	Stk.	105½—102½	4⅜	4⅜	103	
Argentine Nav. ... Cum. pref.	1	19/6—11/-	Nil.	Nil.	23/4½	
Do. ... ... Ord.	1	14/6—5/6	Nil.	Nil.	19/-	
Australasian Un. S. Nav. Deb.	Stk.	83⅜—80⅜	4	5	80	+1
Belfast Steam ... ... "A"	10 (5pd.)	—	5	5	5	
British & African Nav. Deb.	Stk.	96⅜—91	4⅜	4⅜	102	
British India Nav. ... Deb.	Stk.	94½—88½	4⅜	5¼	83	
British S.S. Invest. Trust Def.	Stk.	357—190	30*	8⅜	355	+5
Do. ... ... Pref.	Stk.	108—105½	6	5¾	104	+1
Do. ... ... Deb.	Stk.	79—77½	4½	6 1/16	74	
Cairn Line ... ... Deb.	Bds.	99—88	5	5⅜	90⅜—91	
Do. ... ... Ord.	1	—	20†	9⅜	44/4½xd	
Clan Line ... ... Ord.	10	32½—22½	25	8⅜	30xd	
Court Line ... ... Ord.	£1	42/—26/-	20	13¼	35/3	+ -/3
Cunard SS. ... ... Ord.	1	101/—68/-	20*	5½	74/-	
Do. ...Cum. pref.	Stk.	95—89	5	5¾	85	
Do. ... ... Deb.	Stk.	99⅛—93½	4⅜	4⅝	99½	
Elder Line ... ... Deb.	Stk.	97¼—89⅜	4⅜	4⅜	103	
Elder Dempster ... Cum. pref.	1	20/6—18/1⅜	5⅜	6¼	18/-	+ -/3
Do. ... ... Deb.	Stk.	92⅜—88⅜	5	5½	86	
Ellerman Lines ... Pref. Ord.	10	9 1/16—9⅛	6¼	6⅜	8¾	
Do. ... Guar. pref.	10	9 1/16—8¾	4½	5¼	8½	
France Fenwick ... Cum. pref.	5	98/5—92/6	5⅜	6¼	87/6	
Furness, Withy ... Ord.	1	61/3—34/3	20*	9¼	52/6	+1/9
Do. ... Cum. pref.	10	9¼—7¾	5	5⅝	9	+ ¼
General Steam Nav. Ord.	7½	12¾—8¼	15	7⅜	22/6	
Do. ... ... Pref.	8	7¼—6⅜	6	7⅜	16/-	
Houlder Line ... Cum. pref.	5	83/9—67/6	5⅜	6¾	80/-	
Do. ... ... Deb.	Stk.	—	4⅜	4½	93	
Houlder Bros. ... Cum. pref.	5	—	5⅜	6¾	4	
Do. ... ... Deb.	Stk.	—	4⅜	5⅜	82	
India Gen. Nav. & Rly. ... Ord.	10	12—8¾	6	5⅜	10⅜	
Indo-China N. ... Pref. Ord.	5	5 1/16—90/-	6	6¾	90/-	
Irrawaddy Flotilla	40	—	15	5 5/16	116	
Khedivial Mail ... ... Ord.	1	37/—10/-	25	13¾	33/9	−1/3
Do. ... ... Pref.	5	77/6—60/6	5⅜	7½	72/6	−2/6
Do. ... ... Deb.	Stk.	94¾—87¼	4⅜	4⅝	95	
King Line ... ... Ord.	1	—	16*	9⅜	36/6	
Lamport & Holt ... Cum. pref.	£1	20/9—18/9	6	6	19/6	
Leyland (F.) ... Cum. pref.	10	8¼—6 1/16	5	6⅝	7⅜	
Mercantile SS. ... ... Ord.	5	18⅜—12	40	13	15	
Do. ... ... Pref.	1	20/1⅛—20/-	5	6¾	15/-	
Moor Line ... ... Ord.	10	—	30	13¼	22½	
Nelson Steam Nav. ... Deb.	100	98⅜—97½	5	5¼	98⅜	
New Zealand ... ... Ord.	£10	—	8	2⅜	32¼	
Do. ... ... Deb.	Stk.	90⅜—88	4	4⅜	89	+3
Nitrate Producers SS. ... Ord.	5	25½—18	30	6¾	25	+ ⅛
Do. ... Cum. pref.	5	—	5	5	5	
Oceanic Steam. Nav. ... Deb.	100	99—95⅜	4⅜	4⅝	96	-1
Orient.Stm.Nav.Co. Cum. pref.	10	9⅜—9 1/16	5	5¼	9	
Do. ... ... Deb.	100	98—91⅜	4⅜	5⅛	89	
P. & O. S. N. ... Cum. pref.	100	100—91	5	5⅜	92	
Do. ... ... Def.	100	349—270	18	5¾	325	−2
Do. ... ... Deb.	Stk.	71—69	3⅛	5⅛	63	
Prince Line	1	95/—26/-	30	7¼	91/3	+1/3
R.M.S.P. ... ... Ord.	100	134⅜—97½	7	6⅜	112½	
Do. ... ... Pref.	Stk.	86⅞—76⅜	5	6⅛	81	−5¾
Do. ... ... Deb.	Stk.	89—86	4⅜	5⅜	89	
Shaw, Savill & Alb. Cum. pref.	5	95/—88/3	5½	5⅝	85/-	
Shell Transport ... ... Ord.	1	6—4⅛	35	5⅜	5⅜	− ⅛
Do. ... Cum. pref.	10	10⅛—9	5	5½	9	− 5/16
Sutherland SS. Co.	£1	69/6—41/6	30	10	51/3	−1/3
Union-Castle SS. Cum. pref.	10	7 1/16—7	4⅜	6	7⅝	
Do. ... ... Deb.	Stk.	92⅜—86⅜	4	4⅜	87 1/16	
West Hartlepool ... ... Pref.	10	8¼—7½	5⅜	7⅜	7⅜	

INSURANCE.

Alliance	20 (2·4 pd.)	10½—8½	12/-	7	9¼	
Indem. Mutual Marine	15 (3 pd.)	13½—9⅜	15/-	5	20½	
London Assurance	25 (12½ pd.)	52⅜—42½	20	6	57	+1
Marine Insurance	25 (15 pd.)	36¾—33⅜	45/-	6	55½	
Merchants' Marine Insurance ...	10 (2½ pd.)	7⅛—71/3	10	6	9⅜	+ ⅛
N. British & Mercantile Ord.	25 (6¼ pd.)	34⅜—29	40/-	6¼	34⅜	
Phœnix Assurance	10 (1 pd.)	7¼—5⅜	40	7	7⅜	+ ⅛
Reliance Marine	10 (2 pd.)	—	20	4⅜	7½	
Royal Exchange Assurance ...	Stk.	189⅜—181	10	5½	232	+4
Sea Insurance	10 (2 pd.)	19½—19⅛	10	6	27	− 9/16
World Marine, Limited ...	5 (2 pd.)	61/3—35/-	5	4⅜	6⅛	− ⅛

IRON AND STEEL.

Name.	Share and paid.	Extreme quotations, 1916.	Last ann. div. % or per share.	Yield. %	Last Quotation	Rise or Fall.
	£					
Babcock & Wilcox... ... Ord.	1	64/6-47/10⅛	15	4⅜	65/-	+1/-
Baldwins ... Cum. pref.	1	1⅛—1	5⅜	5⅜	20/-	
Do. ... ... Deb.	Stk.	87⅛—86¼	4⅜	5⅛	84	
Bayliss, Jones ... Cum. pref.	1	—	5	7¼	1/16	
Bell Bros. ... ... Cum. pref.	10	10 3/16—9 3/16	6	6½	9⅜	
Do. ... ... Deb.	Stk.	80—75⅜	5	6⅞	75⅜	
Bessemer (Henry) ... Ord.	1	29/—26/-	12⅛	8⅜	29/9	
Bolckow Vaughan ... Ord.	1	25/10⅛-18/-	11	8	26/10⅛	
Do. ... ... Cum. pref.	20	19—18	5	5⅞	17	+1
Cargo Fleet Iron ... ... Ord.	1	23/3-13/10⅛	3	3⅛	23/6	
Do. ... ... Deb.	100	86½—84	4⅛	5⅛	83	+1
Consett Iron Co. ... ... Ord.	1	89/4⅛—65/3	50	11⅛	89/6	
Dominion Iron & Steel	Bds.	83—78	5	6⅜	76	
Dorman, Long ... ... Ord.	1	36/—22/3	14	9	43/-	+ -/6
Do. ... ... Deb.	Stk.	97⅜—97	4	5¼	73	
Ebbw Vale Steel & Iron Ord.	1	28/7⅛—19/-	12⅛	9¾	26/3	−2/-
Guest, Keen & Nttefids Ord.	1	71/3—60/-	15*	3⅜	80/-	−2/-
Do. ... ...Cum. pref.	5	5¼—5⅛	5	4⅛	5¾	
Do. ... ... Deb.	Stk.	82¾—80¼	4	5¼	79	
Hadfield's Steel Foundry Ord.	1	82/6—69/-	30	6	100/-	— -/6
Ibbotson Bros.	5 (4 pd.)	8—6	7½	4¾	6¼	
Jessop (W.) & Sons ... Ord.	5 (4 pd.)	9—8	15*	7¼	9	
Lanarkshire Steel Cum. pref.	10	—	5	7⅛	7	
Lysaght (J.) ... Cum. pref.	1	22/7⅛—20/3	6	6	20/-	
Do. ... ... 2nd pref.	1	21/1⅛—21/-	6	6	20/-	
Manganese Bronze ... Ord.	1	—	6	11	1 1/16	
Do. ... ... Cum. pref.	1	—	6	8	¾	
North-Eastern Steel ... Deb.	Stk.	—	4⅛	—	—	
Palmers Ship & Iron "A" ...	1	12/6—9/-	Nil.	Nil.	10/9	
Scott (Walter) ... ... Ord.	1	26/3—17/9	15	12	25/-	
Do. ... ... Pref.	1	16/10⅜—16/3	6	7⅜	19/-	+2/9
Sheffield Forge ... ... Ord.	1	—	15	7½	69/-	
Shelton Iron & Steel ... Ord.	1	20/4½—15/-	7½	8¼	21/-	
Do ... ... Deb.	100	94—92½	5	5½	91½	
S. Durham Steel & Iron Ord.	1	37/6—27/-	10	6⅜	37/6	— -/4½
Do. ... ... Cum. pref.	1	21/—19/-	6	6⅜	20/-	
Do. ... ... Deb.	Stk.	82—80	4⅜	5⅜	80	
Steel Co. of Scotland ... Ord.	10	—	10	10	12/1/-	
Stewarts & Lloyds Pref. ord.	10	18⅜—17	10	6¼	16	
Do. ... ... Cum. pref.	10	—	6	4½	13½	
Stone (J.) ... ... Cum. pref.	10	—	5	6¼	8	
United States Steel ... Ord.	100$	144¾—83½	8	7½	107 1/16	−8¾
Do. ... ... Cum. pref.	100$	128⅜—112¾	7	5⅜	118 1/16	−4
Vickers Ltd. ... ... Ord.	1	40/3—33/6	12⅛	6⅝	39/3	+ -/1⅛
Do. ... ... Pref.	Stk.	93—85	5	6	83	
Do. ... ... Deb.	Stk.	83—75	4	5 5/16	79	
Weardale Steel ... Def. ord.	1	34/—19/1⅜	19⅛	13⅜	29/-	
Do. ... ... Cum. pref.	1	23/6—17/6	6	5	24/6	
Do. ... ... Deb.	Stk.	70⅜—69½	4	6	63	
Workington Iron & Steel Ord.	1	24/3—14/3	10	7⅜	26/-	+ -/3

SHIPBUILDING AND MARINE ENGINEERING.

Armstrong, Whitworth Ord.	1	43/—34/6	12½	7	39/-	+ -/3
Do. ... ... Cum. pref.	5	75/—67/6	4	5¼	70/-	+2/-
Do. ... ... Deb.	Stk.	80⅛—75	5	6⅜	77	+1
Beardmore (W.) ... ... Deb.	100	99—92	4⅜	5	91	
Brown (John) ... ... Ord.	1 (15s. pd.)	27/3—20/6	12⅜	8⅜	27/-	
Do. ... ... Cum. pref.	10	10—5⅜	5	5¼	5⅜	
Cammell Laird ... ... Ord.	5	7—98/-	10	8	6¾	− ¼
Do. ... ... Cum. pref.	5	88/—76/3	5	6¼	82/6	−2/6
Do. ... ... Deb.	100	93⅜—85	4⅜	5⅛	81	
Dunlop (Jas.) ... ... Ord.	1	19/7⅛-13/4⅛	10	10⅛	18/6	− -/6
Do. ... ... Cum. pref.	1	17/1⅛-16/4½	6	7⅜	17/6	
Fairfield Shipbldg Cum. pref.	10	8⅝—8 5/16	6	7⅜	8⅛	
Fleming & Ferguson ... Ord.	10	—	10	7	14¼	
Gray (Wm.) ... ... Deb.	100	100¼—99¼	4⅜	4⅜	100¼	
Hawthorn (R. & W.) Leslie Ord.	10	15⅜—14	12⅜	5⅜	23	
Henderson (D. & W.) Cum. pref.	1	—	5	9	9/16	
Richardsons Westgarth Ord.	1	7/9—2/10⅛	Nil.	Nil.	6/6	
Do. ... ... Cum. pref	1	15/7⅛—8/-	Nil.	Nil.	16/-	— -/9
Do. ... ... Deb.	Stk.	69—67¼	4⅜	6¼	65	
Simons (W.) ... Cum. pref.	10	—	5	5	9 1/16	
Swan, Hunter & W. R. ... Ord.	1	35/6—26/-	12⅜	6½	42/6	
Do. ... ... Cum. pref.	1	18/9—17/-	5	5⅜	17/-	
Do. ... ... Deb.	Stk.	82—80⅜	4¼	5⅜	78	
Thornycroft (John I.) ... Ord.	1	38/9—21/9	17⅜	8⅜	40/-	+1/-
Do. ... ... Cum. pref	1	18/6—16/3	6	6¾	17/6	— -/4½
Do. ... ... Deb.	100	95⅜—88	5	5⅝	84	
Wallsend Slipway ... Ord.	1	2—1⅛	10	5	2	
Do. ... ... Cum. pref.	1	1—1	5	5	1	

* Including bonus. † Also 20 % in shares. ‡ Treasury price.

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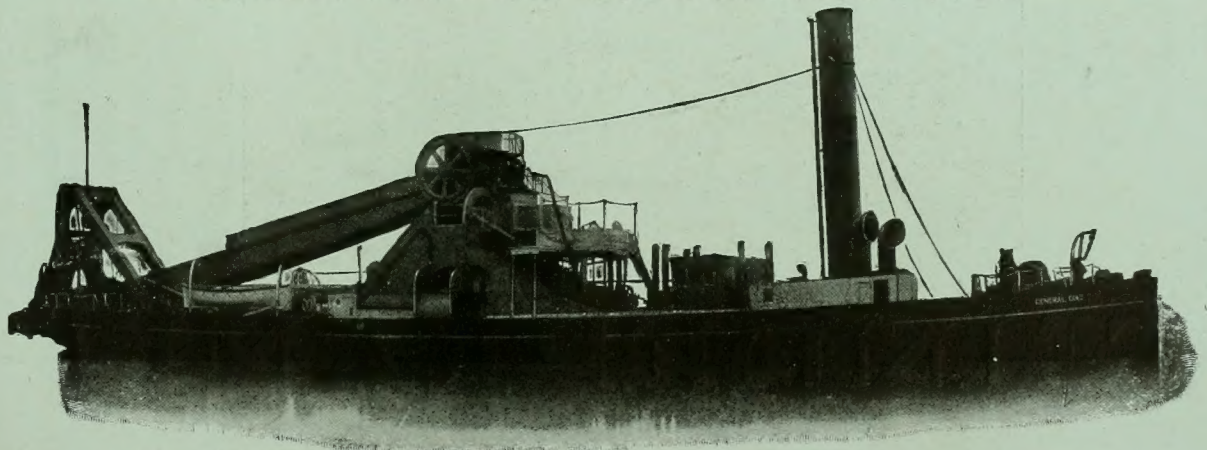

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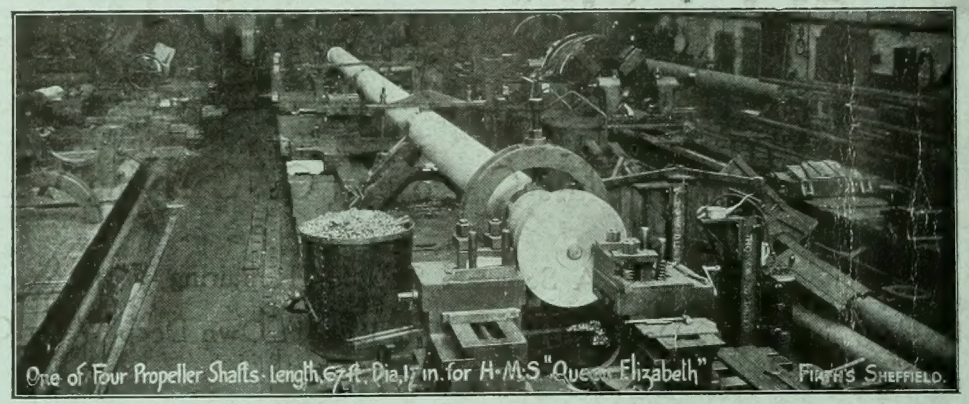

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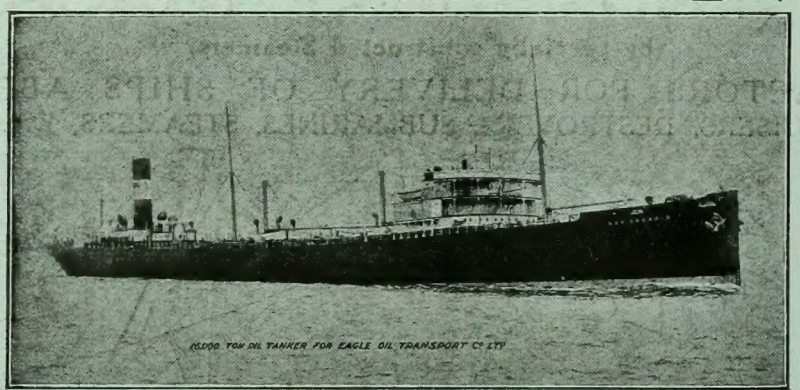

SHIPBUILDERS & ENGINEERS
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